FirstSpirit™

Unlock Your Content

Release Notes+

FirstSpirit™ 2019-02
(from October 2015)

Status	**RELEASED**
Department	FS-Core
Copyright	2019 e-Spirit AG
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e-Spirit

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1   Discontinuation of the proprietary installation packages for FirstSpirit version 5.2R5 `5.2R4`

Discontinuation of the proprietary installation packages for RPM Package Manager (.rpm) and Debian (.deb). The installation packages named above are no longer available from FirstSpirit version 5.2R5 onward.

Still supported are TGZ (for all Unix platforms) and EXE (for Windows).

In future, FirstSpirit will offer a standardized, platform-neutral update management system for all FirstSpirit servers. FirstSpirit ServerMonitoring already provided an update check for all FirstSpirit servers in the "Health Center" area of version 5.2R4. An additional update mechanism is planned from FirstSpirit 5.2R5 onward.

2   Changes regarding AccessControlDb / ACL in FirstSpirit 5.2R16 / 5.2R17 `5.2R17`

While preparing for a new backend technology we moved the internal class `AccessControlDb` from the package `de.espirit.firstspirit.acl.db` with FirstSpirit version 5.2R16. After discussing this change with our customers and partners we decided to rollback this change with FirstSpirit version 5.2R17 to restore the behaviour from before FirstSpirit version 5.2R16.

If you have not yet refactored your code to use the new interface you do not need to do anything and existing implementations will continue to work with FirstSpirit version 5.2R17 (but will not work with FirstSpirit version 5.2R16). If you already did the refactoring, please rollback your changes to use the old classpath. It is unfortunately not possible to be compatible with both versions.

Regarding Downgrades: If you are using this functionality and want to downgrade after an update to FirstSpirit version 5.2R17 manual intervention is needed.

Further details can be found in our Community at https://community.e-spirit.com/community/customer/blog/2017/12/19/info-changes-in-52r16-regarding-accesscontroldb-acl.
If you have questions regarding this, please let us know by contacting our Technical Support team at https://help.e-spirit.com.

3   Announcement: New release names   5.2R21

e-Spirit releases a new FirstSpirit version approximately 12 times per year. All releases are generally equivalent and are usually compatible with the previous version, which means that it is no longer necessary to make a distinction between "maintenance", "release," "minor", and "major" builds. In this way, new FirstSpirit functions are quickly provided to customers and the software quality is continuously enhanced. There is a balanced mix of bug fixes and new features in each release.

This strategy will now be reflected more clearly in the names of individual releases. For this purpose, a new release name schema is scheduled to be implemented as of the next FirstSpirit release. This is based on the release year and month:

```
FirstSpirit <JJJJ>-<MM>
```

The current FirstSpirit version 5.2R21 is followed by version "FirstSpirit 2018-06", then by "FirstSpirit 2018-07", and so on.
This makes it possible to determine the release period quickly and easily based on the release name, and therefore determine whether the software status of a FirstSpirit installation is up to date.

The release name is used in familiar places such as the start page and info dialog boxes.

For more information on the FirstSpirit release strategy, see the FirstSpirit Community (https://community.e-spirit.com/docs/DOC-2073).

4   API deprecations   2018-10

As of FirstSpirit 2018-09, the functionality "Activate" in the scope of the configuration of web servers has been removed (FirstSpirit ServerManager, "Server properties / Web applications" and "Project properties / Web components"). In the course of this change, API methods associated with this functionality have been marked deprecated and may be removed in subsequent FirstSpirit releases:

- Interface `ServerConfiguration`, package `de.espirit.firstspirit.access` (FirstSpirit Access API):
    - `getSelectedWebserverConfiguration`

    - `setSelectedWebserverConfiguration`

- Interface `Project`, package `de.espirit.firstspirit.access.project` (FirstSpirit Access API):
    - `getSelectedWebServer`

    - `setSelectedWebServer`

5 Berkeley DB 3 and 5 will be removed with the next release (migration required) 2018-10

FirstSpirit uses Oracle Berkeley DB as a repository for storing content data. Until now, versions 3 and 5 have been in use and running reliably and in a stable manner for many years. However, in order to benefit from performance advantages and to remain at the forefront of technical development as well as for security reasons, the internal Berkeley DB will be updated to version 7.

As announced with FirstSpirit 5.2R21 (May 2018), support for Berkeley DB 3 and 5 will be discontinued as of FirstSpirit 2018-11. A **Migration to Berkeley DB 7** is **mandatory** if the FirstSpirit server was initially installed using a version **lower than** FirstSpirit 2018-06. FirstSpirit Servers that are initially installed with FirstSpirit 2018-06 or higher use Berkeley version 7 by default.

If an outdated version of Berkeley DB is used on the FirstSpirit server, the server's start page will now display an according warning message to administrators. In this case, it is urgently recommended to perform a timely migration to Berkeley DB version 7.

```
Use of deprecated repository version detected - migration required.
```

> **!** As of FirstSpirit 2018-11, FirstSpirit servers will no longer start if Berkeley DB 3 or 5 are still in use.

The command line interface (CLI) program "BerkeleyUtil" may be used to comfortably perform a conversion of all data in project repositories and internal repositories of a FirstSpirit server to the Berkeley DB 7 format. The conversion process' duration will typically not be long. See also *FirstSpirit Manual for Administrators*, page "FirstSpirit ServerManager / Project properties / Repository", section "Converting a complete FirstSpirit server".

Notes about downgrade capability:

■ After a conversion to Berkeley DB version 7, a downgrade of FirstSpirit to versions lower than version 5.2R18 (released February 2018) will no longer be possible. A downgrade to FirstSpirit versions greater than or equal to 5.2R18, however, will be possible.

6 Browser integration 5.2R18

Special software is used for the "integrated preview" function in FirstSpirit SiteArchitect; this is integrated in SiteArchitect and is based on the browser being used in each case (Mozilla Firefox, Microsoft Internet Explorer or Google Chrome).
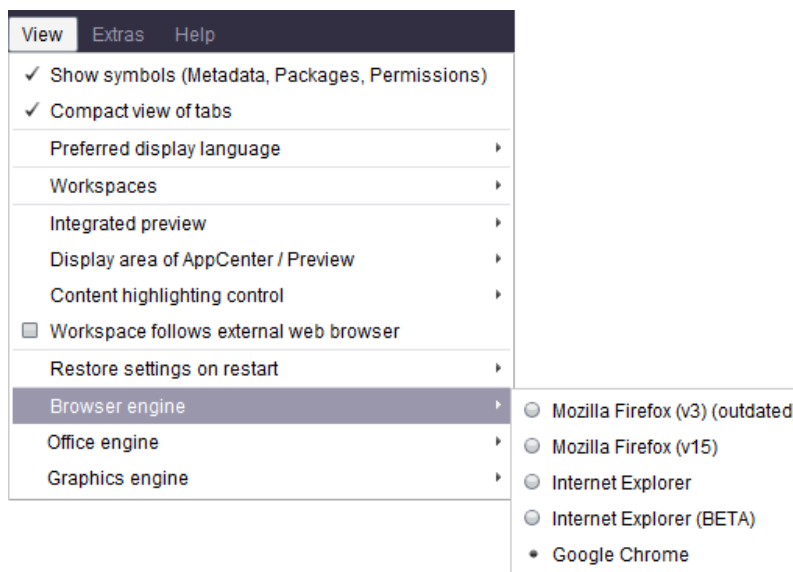
Microsoft and Mozilla are no longer developing their respective products (Internet Explorer or Firefox). The most recent version of Mozilla "Quantum" and Microsoft Edge as well unfortunately lack the interfaces required for embedding the browser into FirstSpirit. The versions of Firefox that are currently being used in FirstSpirit do not provide any support for Java 9. Firefox as a browser engine for the integrated preview function will therefore be discontinued as of FirstSpirit version 5.2R18.

The versions of Internet Explorer that are currently used in FirstSpirit also provide no support for Java 9. The plan is to provide support for Microsoft Edge in the future, both in order to operate ContentCreator and in order to use the integrated preview function in SiteArchitect. Until this time, it will be possible to continue using Internet Explorer for the integrated preview function with Java 8. Support for the current "Internet Explorer" version will expire and, as such, will be discontinued in advance of May 2018

(FirstSpirit version 5.2R21). As a replacement, the previous BETA variant ("Internet Explorer (BETA)") will be released and will then be called "Internet Explorer".

7 Code signing certificates 5.2R5

The content of FirstSpirit JAR files is signed with a certificate. This procedure is also called "code signing". At all times, e-Spirit aims to use up-to-date certificates for all FirstSpirit components. Release Management ensures that customers who update FirstSpirit at least once a year always use a valid certificate.

Using older FirstSpirit versions with invalid certificates primarily affects the use of SiteArchitect and ServerManager: Depending on the configuration of the individual Java security options, the system may, at the very least, show security warnings.

In the current FirstSpirit version, the content is signed with a new certificate that is valid until 2018-06-13 (13 June 2018).

Overview of certificates currently used by FirstSpirit:

FirstSpirit version (major line)	FirstSpirit version	valid until
4.2	up to 4.2.503	13.06.2016
	from 4.2.504	21.05.2017
	from 4.2.509	13.06.2018
5.0		13.06.2016
5.1	up to 5.1.502	13.06.2016
	from 5.1.503	21.05.2017
5.2	up to 5.2.501	21.05.2017
	from 5.2.502	13.06.2018

Information for customers with "Deployment Rule Set": If you are using a Deployment Rule Set, which allows you to centrally manage Java security settings and determine which applications are permitted to start in the browser, you should ensure that the rule set matches the certificate when a certificate is updated by e-Spirit.

8 Database schemata: New system column 5.2R17

Within the scope of a new feature, a new system column named

```
FS_META_DATA
```

has been introduced to database schemata.

In **newly created** database schemata or tables, this column is automatically created.

In **already existent** database schemata, this column will be created in tables as soon as the respective schema is updated, i.e. the schema is modified and saved. Alternatively, the context menu item "Edit externally" may be used on the respective schema; either closing the dialog "Externally edited elements" via "Apply changes and close" or a sequence of clicking "Apply changes" and closing the dialog will cause the column to be created in the schema. During a project import into a FirstSpirit server, the column will also be added automatically.

For further information, see chapter 5.2, "FS_INDEX: Manually Sorting Datasets".

9 Documentation for FirstSpirit SiteArchitect: now available in HTML format, too `5.2R4`

In addition to the Documentation for FirstSpirit ContentCreator, FirstSpirit Release-Notes and the FirstSpirit Online Documentation (ODFS), the Documentation for FirstSpirit SiteArchitect is now also created and managed by FirstSpirit. This means that FirstSpirit replaces Microsoft Word for the process of creating documentations. While the documentation has been available so far only in PDF format, it is now also available in HTML format (accessible from the ODFS). Up to now, approximately one half of the content of the documentation could be transferred to FirstSpirit. The result is published as beta version in FirstSpirit 5.2R4.
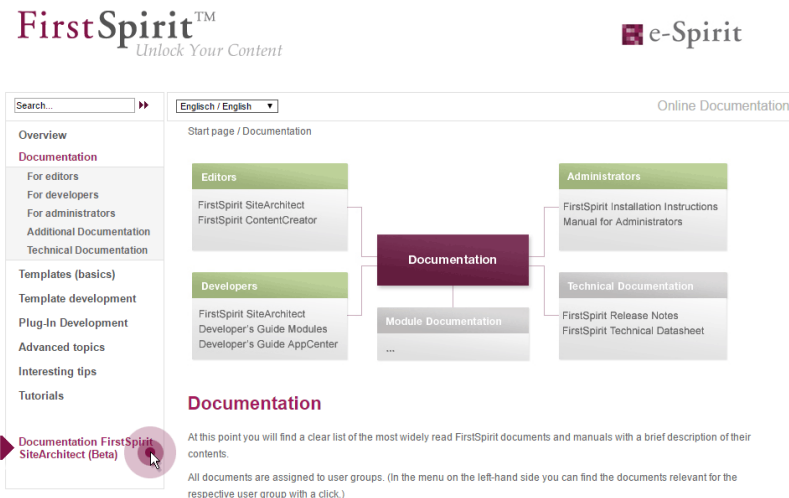
Advantages of FirstSpirit compared to conventional text processing programmes:

- simplified cooperation of editors

- all in one single place: structured, integrated storage of texts and pictures

- FirstSpirit standard functionality that facilitate editorial activities: for example integrated version history, integration of workflows, easy reuse of texts and media

- any additional functions required can be developed inhouse (for example Plug-in for project wide search and replace of text)

- PDF file at the push of a button

- system-supported translation process

Advantages for the customer:

- early internal testing of new FirstSpirit versions in productive use before official release

- links between the single documentations are possible (in the HTML edition, "FirstSpirit CorporateMedia" / Remote functionality)

- central search in all documentation is possible (in the HTML edition)

Review:

The **Documentation for developers** (the "ODFS") is generated using FirstSpirit from the start. Publication medium: HTML. It can be accessed among other things from FirstSpirit SiteArchitect and constitutes an important part of the FirstSpirit documentation.

Since FirstSpirit 5.0 (09/2012) the **Documentation for ContentCreator** is created using FirstSpirit, too. Since then, it has been not only published in HTML but also in PDF format. The HTML edition can be accessed contextually from ContentCreator. In addition to the content pages, tooltips for icons and buttons in ContentCreator et al. are managed using this documentation project. Thus, we build another bridge between the core product and documentation.

The **Release Notes** for the release versions have been created using FirstSpirit for some time now, too (since FirstSpirit 4.0.25, 09/2007). The concerning project is closely connected with the internal build and bug tracking systems. Since FirstSpirit 5.2R2 the project works primarily with database content, for example in order to profit from the more comfortable reuse and sortability of content. Publication medium: PDF.

Outlook:

Further FirstSpirit documentation should be transferred to FirstSpirit in the future. Then it will be possible to establish more cross references, for increasing comprehensibility, redundancies are to be removed in return. Central management of the templates and distributing them into the single FirstSpirit projects by using external synchronization is envisaged.

10 Eclipse Jetty 5.2R18

"Eclipse Jetty", the open-source product integrated in FirstSpirit, is used to provide a web server and a JSP/servlet engine that run as part of the FirstSpirit Server in the same VM. This integrated web server is only intended to be used for test purposes, so that customers can use FirstSpirit directly with web server functions and do not need to install and connect an external web server beforehand. In productive operation, and especially in operational scenarios that require a more complex configuration, a web server of an Apache Tomcat type, for example, should be used and integrated into FirstSpirit.

An integrated Jetty web server in version 9.2 is currently being used in FirstSpirit. This version is no longer receiving support from the manufacturer, which means that it no longer provides security patches; additionally, it is not compatible with Oracle Java 9. For these reasons, switching to a more recent Jetty

version is essential. In the future, Jetty will be made available as a module so that it is less reliant on implementation by the manufacturer, and so that it is easier to provide support for the functions within FirstSpirit.

Jetty has already been released as a module (`fs-jetty.fsm`) in FirstSpirit version 5.2R13. Due to the isolated class loading in "isolated mode", the amount of potential library conflicts in customer-specific web applications is noticeably reduced in this mode. Thus, the Jetty module is especially suitable for use with FirstSpirit servers that operate in "isolated mode".

As of FirstSpirit version 5.2R18, this module can also be used with FirstSpirit servers that are not operated in "isolated mode" but in "legacy mode". For usage in "legacy mode" it is part of the early access program ("EAP"). This module bases on the most recent version: 9.4. However, this version is not compatible with Java 7 and requires at least Java 8.

Both the earlier implementation "InternalJetty" and the new implementation as a module run within the same JavaVM as the FirstSpirit server. This configuration is not suitable for production operation and should only be used for tests. For more complex configuration requirements (e.g. adjustment of memory size, timeouts, number of threads per deployed application, …), use of an external web server (e.g. Tomcat) is recommended.

The functions of the integrated Jetty server will be discontinued with FirstSpirit version 5.2R18, and are scheduled to cease existing at all in August 2018 (FirstSpirit version 5.2R24). In the meantime, the currently integrated Jetty functions as well as Jetty as a module will be available in parallel with one another. During this period, it will be possible to test out the module and convert the operation of existing FirstSpirit installations that use Jetty to the Jetty module.

For more information please see Chapter "Using Jetty as a module (EAP)".

11   FirstSpirit Content Experience Tools (Start of EAP phase)   5.2R20

The "Early Access Program (EAP)" phase for FragmentCreator starts with the release of the current FirstSpirit version.
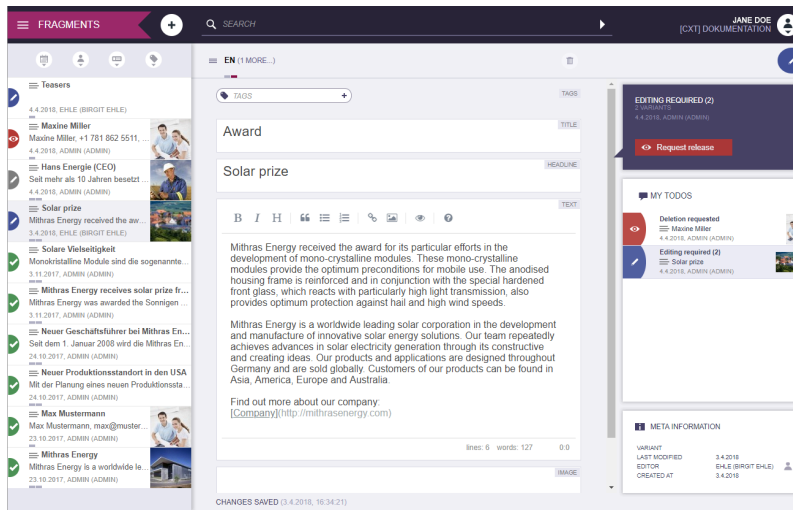
What is FragmentCreator?

FragmentCreator is the first e-Spirit "Content Experience Tools (CXT) client" which is designed from the ground up to meet the specific requirements of content creation and distribution. From an editorial point of view, FragmentCreator is a web application that is perfectly adapted for the creation and editing of format-neutral fragments.

Which problems can be solved by the FragmentCreator?

SiteArchitect and ContentCreator are designed for editing content so that it fits a particular context and publishing that content from FirstSpirit into previously defined channels (push strategy), e.g., a website (desktop or mobile).

In new concepts, such as FirstSpirit CaaS (Content-as-a-Service), content is stored in format-neutral fragments so that it can be easily accessed by any front end via a universal interface (pull strategy). By employing this strategy, the content's reach expands to all digital platforms, devices, and distribution channels that can be accessed via an interface. The ultimate aim of this is the furthest possible distribution of content.

What are fragments?

Fragments are small, self-contained units of content, such as a product description, a press release, contact details, etc.. Media can also be used in a fragment.

Because they are all self-contained, fragments can be created, managed, tagged, and published (e.g., using FirstSpirit CaaS) independently of any context. Once created, these fragments can be used in a wide range of scenarios.

Fragments and variants – what's the difference?

The CXT concept is based on the assumption that variants of fragments are required in many applications. This means that the content or message is identical, but the form is different. For example, variants of a fragment can differ in terms of scope, level of detail, or language (simple vs. complex).

So by using variants, content can be created for publication or release for various audiences, different output devices, a range of campaign durations, etc. The content variant for a mobile output device, for example, will tend to be shorter and more compact than that for a desktop computer.

Variants can be edited and released independently of one another.

Examples of variants:

- Language-dependent content, e.g., written in "German" and "English"

- Information used in learning materials for different levels, e.g., "beginner" and "advanced"

- Different forms of marketing content, e.g., for A/B testing

- Different scopes for different output devices

Do I need a license for FragmentCreator?

For partners, FragmentCreator does not require a license. Customers will also not need one as long as they have licensed FirstSpirit CaaS.

Information on the EAP phase:

In the EAP phase, the FragmentCreator is to be tested in real customer scenarios. Where are the opportunities for optimization? Which functionalities are still required? Where do problems occur?

The FragmentCreator probably does not yet meet your usual requirements for stability and reliability. For this reason, participants in the EAP phase are supported by e-Spirit staff during commissioning and will receive help quickly whenever any questions or problems arise.

FragmentCreator, the CXT platform, and the related documentation will be augmented and extended during the EAP phase.

Please do not hesitate to contact us if you have a suitable use case! Please contact Technical Support (for partners) or your account manager (for customers).

12 FirstSpirit Manual for Administrators 5.2R12

The "FirstSpirit Documentation for administrators" is now also created and managed by FirstSpirit. While the documentation has been available so far only in PDF format, it is now also available as HTML edition. The HTML edition is currently at beta stage: It is currently still being revised.

The HTML documentation can be reached from the left navigation sidebar in *FirstSpirit Online Documentation* ("ODFS"):
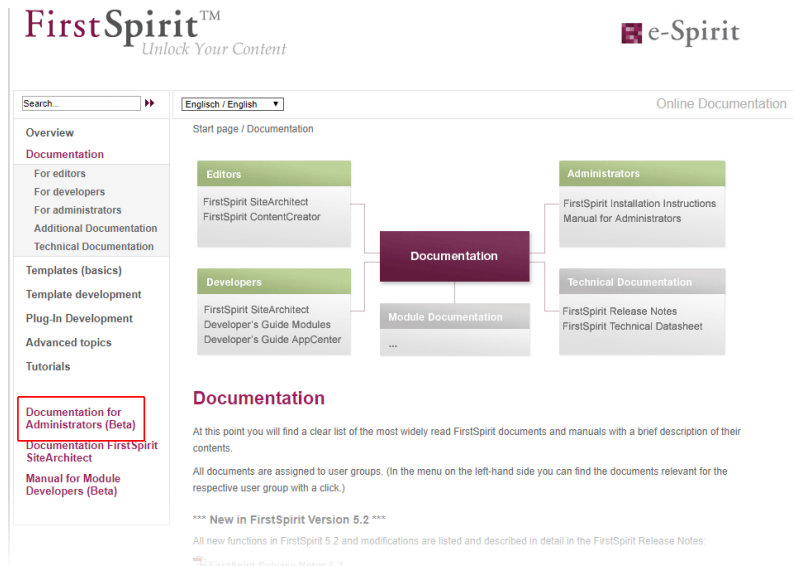
The PDF version of this documentation continues to be available via ODFS in the chapter "Documentation", as well as from within SiteArchitect (menu "Help" (menu entry "Administrators") and F1 or by using the help button in the horizontal toolbar).

13 FirstSpirit HTML documentation 5.2R5

In addition to the Documentation for FirstSpirit ContentCreator, FirstSpirit Release Notes and the FirstSpirit Online Documentation (ODFS), the Documentation for FirstSpirit SiteArchitect and the "FirstSpirit Manual for Developers (Components)" are now also created and managed by FirstSpirit. This means that FirstSpirit replaces Microsoft Word for the process of creating documentations. While the documentation has been available so far only in PDF format, it is now also available as HTML edition.

- The complete HTML documentation for FirstSpirit SiteArchitect has left the beta stage and is now generally available. The migration process for this documentation is now complete, and it is now managed entirely within a FirstSpirit project.

- The HTML documentation "FirstSpirit Manual for Developers (Components)" is currently at beta stage: It is only available in German and is currently being revised.

The HTML documentation for FirstSpirit SiteArchitect and the "Manual for Developers (Components)" can be reached from the left navigation sidebar in *FirstSpirit Online Documentation* ("ODFS"):
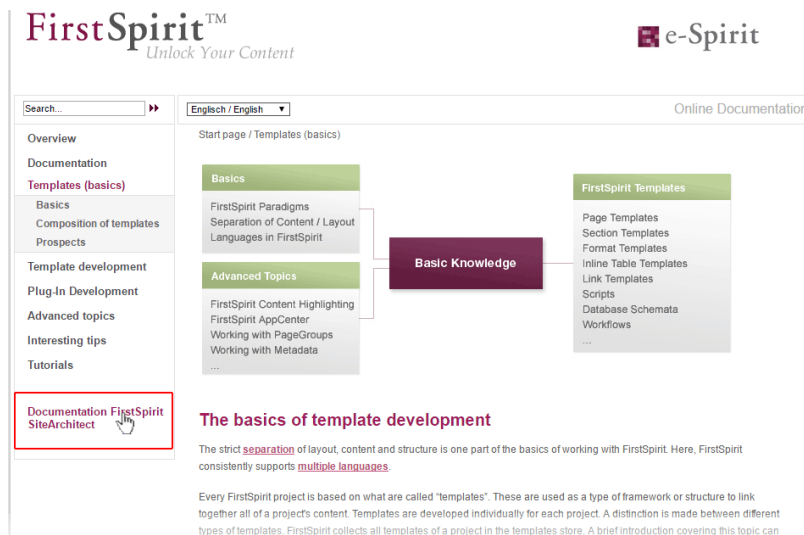
The HTML documentation for FirstSpirit SiteArchitect can also be reached via the menu "Help" (menu entry "User (SiteArchitect)"). Context-sensitive navigation from within SiteArchitect to the documentation can be achieved by pressing F1 or by using the help button in the horizontal toolbar.

The PDF version of these documentations continues to be available via ODFS in the chapter "Documentation". The PDF containing the documentation for FirstSpirit SiteArchitect as well as the HTML version are generated from the same FirstSpirit project.

The URLs of the HTML documentations have been modified in this context, too. Bookmarks to the FirstSpirit online documentation should, therefore, be adapted accordingly.

14 FirstSpirit documentation in HTML format `5.2R14`

The complete FirstSpirit HTML documentation for Administrators has left the beta stage and is now generally available. The migration process for this documentation is now complete, and it is now managed entirely within a FirstSpirit project.

Another new documentation is the one for the "FirstSpirit External Synchronization" functionality (see also Chapter 1. and 4.).

The HTML documentation can be reached from the left navigation sidebar in *FirstSpirit Online Documentation* ("ODFS").

The HTML documentation for Administrators can also be reached via the menu "Help" (menu entry "Administrators"). Context-sensitive navigation from within SiteArchitect to the documentation can be achieved by pressing `F1` or by using the help button in the horizontal toolbar. The PDF version of these documentation continues to be available via ODFS in the chapter "Documentation".

15 FirstSpirit product update 2018 `5.2R18`

In keeping with its best-of-breed strategy, FirstSpirit uses a range of software components that are provided by third-party vendors. For security reasons, and to stay abreast of the latest developments in each type of technology, the ways in which these software components are used in FirstSpirit undergo regular updates.

In today's approach to product development, updates are being provided with increasing frequency and the length of time for which "older" versions can rely on support is becoming shorter and shorter.
As a result of this, it is becoming inevitable that customers will need to switch to a newer software version more frequently. It is also important to address the fact that individual third-party components are becoming dependent on one another in more and more ways. Oracle Java is a system that many

components rely on, for example, but there are some third-party components that are not available in a version compatible with Oracle Java 9.

Here at e-Spirit, we are setting a challenge for ourselves. To ensure that using third-party components with FirstSpirit achieves the same levels of accuracy and quality that are achieved with the core product itself, we are investing a great deal of time and consideration in implementing and organizing processes, and performing quality control measures for them. e-Spirit is committed to making it as easy as possible for customers to update to new FirstSpirit releases at any time, and offers support during the process of rolling out new functions. However, it will not be possible to rule out the need for some outlay in this project altogether. 2018 will be a year characterized by a handful of new features in the area of third-party components integrated into FirstSpirit. In order for customers to benefit from these features, they will need to take certain actions.

As is the case with the FirstSpirit core, the use of third-party components will be subject to intensive quality assurance processes consisting of both manual tests and software-supported, automated tests, and incorporating the experiences gained from using the components in production applications in-house at e-Spirit. With such a multitude of operating systems being supported, as well as Java versions, interfaces with third-party components, and the various possibilities for combining and configuring all these systems, the test environment will naturally be extremely complex. Consequently, there will remain a certain degree of probability that the QA activities will not be able to identify and resolve every single problem in advance.

With this in mind, e-Spirit wishes to emphasize that it is relying on customers to assist it in this process: Some new features will be provided to customers in an early development stadium as part of an Early Access Program ("EAP"). In this context, the status "EAP" means that the functionality is not yet in the state "General Availability" (GA). With e-Spirit's agile approach, new features are being developed in small increments and provided to customers successively in order to reduce potential problems and susceptibility to errors as well as to be able to react in a timely manner to customer feedback. Thus, EAP features will very likely be augmented with further functionality in later versions. Features in EAP state have already been subjected to extensive quality assurance, however, due to the test complexity described above, may still show problems when used on production systems. Generally, features in EAP state are mature enough to be put to use by customers. They should, however, be initially used on testing systems, and e-Spirit should be notified of potential problems. Customer feedback is expressly requested.

16   FirstSpirit product update 2018   `5.2R19`

The following sections outline the latest developments relating to relevant third party components being used in FirstSpirit or to support Oracle Java.

17   FirstSpirit product update 2018: Update July 2018   `2018-07`

In keeping with its best-of-breed strategy, FirstSpirit uses a range of software components that are provided by third-party vendors. For security reasons, and to stay abreast of the latest developments in each type of technology, the ways in which these software components are used in FirstSpirit undergo regular updates.

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Here at e-Spirit, we are setting a challenge for ourselves. To ensure that using third-party components with FirstSpirit achieves the same levels of accuracy and quality that are achieved with the core product itself, we are investing a great deal of time and consideration in implementing and organizing processes, and performing quality control measures for them. e-Spirit is committed to making it as easy as possible for customers to update to new FirstSpirit releases at any time, and offers support during the process of rolling out new functions. However, it will not be possible to rule out the need for some outlay in this project altogether. 2018 is a year characterized by a handful of new features in the area of third-party components integrated into FirstSpirit. The current status is explained in the following sections.

Java Support

FirstSpirit currently supports Oracle Java 8 and 10 as well as OpenJDK 10 for the FirstSpirit Servers. Oracle is planning to discontinue support for Java 8 at the start of 2019 and for Java 10 (18.3) in September 2018. Version 11 (18.9 LTS) is also to be released in September. According to Oracle's current roadmap, Oracle Premier Support seems to be the prerequisite for purchasing an Oracle Java version in the future (see also http://www.oracle.com/technetwork/java/javase/eol-135779.html). At present it is still uncertain whether and to what extent e-Spirit can continue to support Oracle Java under these conditions.

To reduce dependency on Oracle's Java development and also so that longer-term plans can be made for the benefit of our customers, e-Spirit has increased its focus on the use of OpenJDK for some time. OpenJDK is the officially free to download implementation of Java SE ("Java Platform, Standard Edition"). Currently it technically still differs marginally from Oracle Java, but these differences are to be gradually eliminated in the future.

For example: **Java Web Start** is missing in OpenJDK. This technology provides the user with a convenient way of starting FirstSpirit SiteArchitect from within a browser. It is still currently included in Oracle Java 8 and 10. However, this function will disappear with Oracle Java 11 (18.9).

As an alternative, e-Spirit is currently developing a new and optimized version of the **FirstSpirit Launcher**. The Launcher has for some time supported an option to start and run FirstSpirit SiteArchitect and ServerManager without Java being installed on FirstSpirit users' workstation PCs. The Java version used in the Launcher is being selected and extensively tested by e-Spirit. The use of Java versions that have previously been identified as problematic can thus be avoided. Another positive feature of the Launcher is that incompatibilities or version conflicts with other Java products installed on the system can no longer occur.

An initial version of the new Launcher that supports both Windows and Mac OS will be made available in a future FirstSpirit release. A silent installer will be used for group-based installations instead of an MSI installer. The FirstSpirit Launcher used up until now will be removed in Q4 2018.

New Berkeley DB version

Oracle Berkeley DB is used in FirstSpirit as a repository for saving content data. Until now, versions 3 and 5 have been in use and running reliably and stably for many years. However, in order to benefit from performance advantages, to remain at the forefront of technical development, and last but not least, for security reasons, plans are in place to update the internal Berkeley DB to version 7 in the near future. New FirstSpirit Servers that are installed with FirstSpirit 2018-06 or higher use Berkeley version 7 as standard.

FirstSpirit support for Berkeley DB versions 3 and 5 is scheduled to be discontinued by November 2018 (FirstSpirit 2018-11). A server-wide switch to version 7 must be executed before the support for versions 3 and 5 is discontinued, as any FirstSpirit Servers that are still running version 3 and/or 5 will no longer start after this time. Therefore, we recommend switching from version 3 or 5 to 7 as soon as possible.

The "BerkeleyUtil" command line tool provides a convenient means of converting all data from project repositories and internal repositories of a FirstSpirit Server to Berkeley DB 7 format. Conversions are usually completed relatively quickly.

Improvements have been made to this conversion tool based on customer feedback for FirstSpirit 2018-07.

Notes on upgrade and downgrade compatibility: Following conversion to Berkeley version 7, FirstSpirit can no longer be downgraded to versions earlier than version 5.2R18 (published in February 2018). However, a downgrade to FirstSpirit versions later than 5.2.R18 will be possible. Switching from FirstSpirit version 5.2R17 (published in January 2018) or earlier to FirstSpirit version 2018-11 or higher requires a conversion to be carried out first with the conversion tool.

Should problems unexpectedly be encountered when using Berkeley 7 or during migration, these should be reported to e-Spirit immediately to enable them to be resolved before the official release of Berkeley 7.

Integrated web server "Eclipse Jetty"

"Eclipse Jetty", the open-source product integrated in FirstSpirit, is used to provide a web server and a servlet engine that run as part of the FirstSpirit Server in the same VM. This integrated web server is only intended to be used for test purposes, so that customers can use FirstSpirit directly with web server functions and do not need to install and connect an external web server beforehand. In productive operation, and especially in operational scenarios that require a more complex configuration, a web server of an Apache Tomcat type, for example, should be used and integrated into FirstSpirit.

To become less reliant on implementation by the manufacturer here too, for security reasons and so that it is easier to provide support for the functions within FirstSpirit, the existing Jetty functionality ("InternalJetty") has been transferred to a system module (`fs-jetty.fsm`).

The functionality of the built-in Jetty "InternalJetty" has been discontinued with FirstSpirit version 5.2R18 and support is scheduled to cease in August 2018 (FirstSpirit 2018-08). The Jetty system module can be used as an alternative. This module is also not designed for productive operation and as such it only supports basic configuration options. For example, configuration is only possible via the graphical interface (and not via text files in the file system, `fs-webapp.xml`) and the module does not offer the configuration of the web server as a reverse proxy.

More alternative solutions for special operational scenarios will be available from FirstSpirit release 2018-08. These will be able to map most web server configurations. We intend to make the transition from the "InternalJetty" implementation to the new solutions as easy as possible for our customers and partners.

Browser integration

Special software is used for the "integrated preview" function in FirstSpirit SiteArchitect; this is integrated in SiteArchitect and is based on the browser being used in each case (Mozilla Firefox, Microsoft Internet Explorer or Google Chrome).
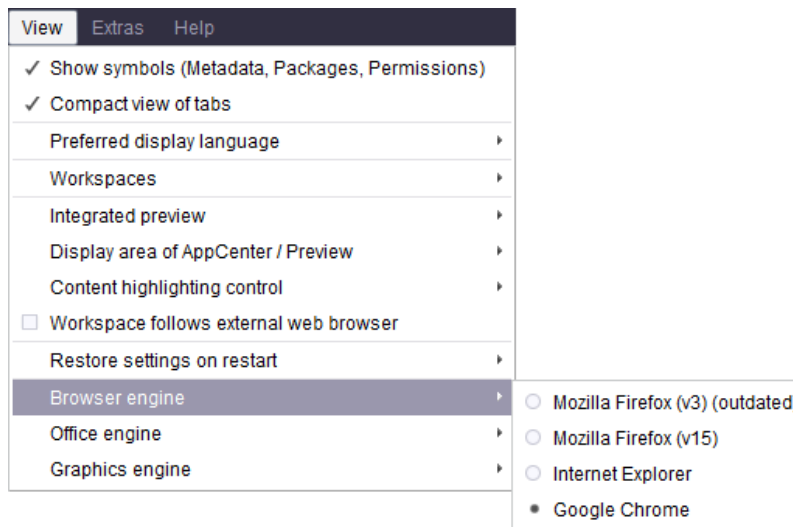
The versions of Mozilla Firefox and Microsoft Internet Explorer that are currently being used in FirstSpirit do not provide any support for Java 9+.

Mozilla Firefox as browser engine for the integrated preview function has been therefore discontinued as of FirstSpirit version 5.2R18 (February 2018) and is scheduled to cease existing at all with the next release FirstSpirit 2018-08.

The externally developed library, which is the basis for the browser engine **Internet Explorer**, will no longer be developed / updated in the near future and has been officially discontinued by the manufacturer. For this reason, Internet Explorer as browser engine for the integrated preview in FirstSpirit SiteArchitect will be discontinued. The function will be omitted in release FirstSpirit 2018-11. As an alternative, Google Chrome can be used further on for internal previews or, of course, every other browser for "external" previews (for example by deactivating the option "View / Integrated preview/ use for content" or by right-clicking on the preview icon or click with pressed Ctrl key).

Database support

Highly structured content can be managed in databases in FirstSpirit. FirstSpirit has powerful mechanisms for connecting databases. FirstSpirit comes complete with an integrated database (Apache Derby), and six database providers/database types are currently supported by FirstSpirit for external connection:

- IBM DB2

- MariaDB

- MySQL

- Microsoft SQL Server

- Oracle

- PostgreSQL

28 versions of databases from these suppliers are currently supported (maintained). Like e-Spirit, the suppliers are operating ever shorter release cycles (keyword: "agility"); in other words, new versions are appearing on the market more quickly than ever, and they have to be tested. If dependencies on specific operating systems, different configurations (e.g., permission definition, data types), and drivers also have to be taken into account, it gets more and more difficult to meet the resulting test requirements. To make precise statements at any given time about which database in which version will work together with FirstSpirit successfully/without errors, these tests would have to be carried out at regular intervals as well as in the context of the release of new versions. New products and technologies (e.g., Cloud services like Amazon Aurora, Microsoft Azure SQL database, etc.) are not yet being included in such tests.

e-Spirit is currently sounding out options to enable us to provide more precise and better information in the future about which types and versions of databases are supported by FirstSpirit. One possible solution might be a test infrastructure which would support automated testing and enable more detailed and faster analyses to be produced. An infrastructure like this could also be made available to customers so that the specific database actually installed by them could be checked for compatibility with FirstSpirit. To make it easier to provide support for the functions of the integrated "Apache Derby" database in the FirstSpirit environment, these functions could potentially be transferred to a FirstSpirit module. The integrated "Apache Derby" database is not suitable for productive operation and should only be used for test purposes.

New logging technology

FirstSpirit uses "Apache Log4j" for its logging framework. The 1.x series is no longer supported and will not run as of Oracle Java 10. Therefore, we intend to switch FirstSpirit logging to the successor product "Log4j 2" in the near future. The use of asynchronous loggers makes logging much faster than with "Log4j 1" and the functional scope is much wider.

Configuration by the user is no longer carried out with "Properties" files but using structured configuration files with *XML*, *JSON*, or *YAML*. To make it easier for customers to switch to the new configuration file format, we plan to offer tool support. However, manual intervention might also be necessary for very complex logging configurations.

We are also planning to adapt and modernize the FirstSpirit API logging functions in line with the "Log4j 2" API in order to benefit from new functions supported by the new logging framework. The FirstSpirit API

will remain compatible, however; i.e., modifications to modules which use the existing API, for example, will not be necessary according to our current plans.

18   FirstSpirit Third Party Preview (TPP)   5.2R16

To enable content that originates from external applications ("apps") rather than being generated directly from FirstSpirit to still be displayed and used in FirstSpirit, "FirstSpirit Third Party Preview" (TPP for short) can be used. This displays the content from the external app in FirstSpirit ContentCreator. Content that is maintained in FirstSpirit (editorial content) can also be displayed and edited there. In contrast to conventional FirstSpirit projects, individual items of content can (depending on the project design) be edited and released independently of each other (by different editors), even if they are displayed on a (HTML) page. TPP allows also previewing content deriving from FirstSpirit CaaS.

To enable the functionality to be used,

- the FirstSpirit module `fs-tpp-[version].fsm` is required,

- a corresponding preview URL must be stored in the project properties (area "ContentCreator settings").

This module is currently in ramp-up stage. If you are interested, please contact your e-Spirit customer representative.

For more information please see also

- "FirstSpirit Third Party Preview" documentation

- FirstSpirit documentation "Content as a Service"

- FirstSpirit Manual for editors (ContentCreator)

19   FirstSpirit, Java 11 and the Launcher   2018-09

By the end of September 2018 (presumably 2018-09-25) the first version of Java 11 will officially be released. With this release, the requirement for using Oracle Java is an "Oracle Premier Support" contract (see also http://www.oracle.com/technetwork/java/javase/eol-135779.html) for both servers and clients. Updates for Oracle Java 8 are also expected to require a fee from 2019 onwards for companies

respectively commercial use. At present it is still uncertain whether and to what extent e-Spirit can continue to support Oracle Java under these conditions.

In order to generally become less dependent on Java development by Oracle and also to be able to plan long-term with the benefits of the customer in mind, e-Spirit is focusing increasingly on the usage of OpenJDK. We will therefore switch to the OpenJDK for quality assurance measures for Java versions greater than 8, and we would like to encourage our customers to also use OpenJDK in the upcoming versions.

At the time of the release of FirstSpirit 2018-09 only a Release Candidate (RC) of Java 11 is available. To allow our customers and partners to try out FirstSpirit with Java 11 at an early stage, extensive tests have been carried out with pre-release versions of Java 11 in the past weeks.
These tests have shown that, on the **server-side**, FirstSpirit can be run with Java 11. e-Spirit has therefore decided to release the usage of Java 11 RC build 28 for the FirstSpirit server with "EAP" status, as of version FirstSpirit 2018-09.

The challenge concerning the **client-side** release of Java 11 is the lack of Java Web Start functionality in both OpenJDK 11 and Oracle Java 11 for starting the SiteArchitect as well as the ServerManager from the browser. As an alternative to Java Web Start, e-Spirit has been offering the FirstSpirit Launcher for some time now, which is based on Oracle Java 8 until now. In order to remain fit for the future, the launcher will be made available in one of the upcoming FirstSpirit releases with an OpenJDK 11 and thus for the first time with a Java version > 8. Initial tests of the FirstSpirit clients with OpenJDK 11 RC have been conducted successfully. After the official release of Java 11, the client-side applications of FirstSpirit (SiteArchitect and ServerManager) will support Java 11 in conjunction with the release of a FirstSpirit launcher based on the OpenJDK.

20 FragmentCreator   2018-09

New web.xml parameters

In preparation for an improved cloud capability, the communication of the internal REST services has been modified. Three new parameters were introduced into the `web.xml`:

- webServiceBaseUrl

- oAuthClientSecret

- jwtSigningKey

In case the `web.xml` was changed manually, these parameters have to be added again:

```xml
<context-param>
        <param-name>webServiceBaseUrl</param-name>
        <param-value>${WEB_SERVICE_BASE_URL}</param-value>
</context-param>
<context-param>
        <param-name>oAuthClientSecret</param-name>
        <param-value>${RANDOM_VALUE}</param-value>
</context-param>
<context-param>
        <param-name>jwtSigningKey</param-name>
        <param-value>${RANDOM_VALUE}</param-value>
</context-param>
```

`webServiceBaseUrl`
This is the internal base URL of the FragmentCreator. the default value `WEB_SERVICE_BASE_URL` is automatically determined from the FirstSpirit WebApp configuration and works in most cases. However, if preceding proxy web servers are active, it may be necessary to switch to an internal URL (e.g. "http://localhost:8080/fragmentcreator").

`oAuthClientSecret` and **`jwtSigningKey`**
These parameters contain keys for internal encryption and can only be configured for error tracking purposes. The default value `RANDOM_VALUE` provides a secure character sequence that changes with each start.

Licensing

As of release FirstSpirit 2018-09, the FragmentCreator requires a license. If no valid license exists, the FragmentCreator can no longer be started and the client button on the FirstSpirit start page is grayed out. The license can be obtained as usual.
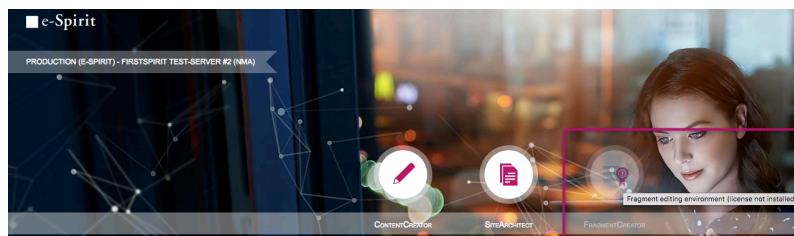
Missing license

> **!** The CXT documentation will be adjusted accordingly.

21 Release of the new FirstSpirit Launcher   2018-10

A new, optimized version of the FirstSpirit Launcher has been made available with FirstSpirit 2018-08. Unlike previous versions, this new version supports the use of macOS, and in principle can run on Linux tool. The new version also supports a fully automatic update (of both the Launcher itself and the JRE) under Microsoft Windows and macOS. What's more, the new Launcher offers a tray application that gives the user a convenient overview of the FirstSpirit Java applications that are currently active and that have been used recently.

This new launcher version is officially released with FirstSpirit 2018-10. It can be downloaded via the start page of a FirstSpirit server which is running with version 2018-08 or higher, and then distributed. If the FirstSpirit Launcher was installed in a version prior to FirstSpirit 2018-08, a manual update is required, since in this case an automatic update does not take place.

The previous version of the launcher is deprecated as of FirstSpirit 2018-11 and will be no longer supported then.

The Launcher allows starting FirstSpirit SiteArchitect or ServerManager independently of a local Java installation. It will replace the functionality "Java Web Start" which will be no longer offered by Oracle Java in the future.

For more information please see

- Chapter "Java Support"

- *FirstSpirit Installation Instructions*, Chapter "FirstSpirit Launcher"

- *FirstSpirit Manual for Administrators*, page "FirstSpirit start page / Areas of the start page / FirstSpirit Launcher"

22   Release of Java 11 and "FirstSpirit Launcher JRE" module 2018-12

Java 11 is released with FirstSpirit 2018-12, both for server and clients, the "EAP" status is terminated. On the server side, the restrictions described in the release notes for FirstSpirit 2018-10 could be removed by updating the relevant third-party components / libraries (Eclipse Jetty and ASM, see Chapter "Update of internally used software").

On the client side, there are no known restrictions when working in FirstSpirit SiteArchitect and ServerManager when using Java 11. The display problem regarding the caret in CMS_INPUT_DOM/ DOMTABLE in connection with certain fonts has been fixed with the current release (see *CORE-9193*).

To be able to use Java 11 for FirstSpirit SiteArchitect and ServerManager, the FirstSpirit Launcher must be used in conjunction with the "FirstSpirit Launcher JRE" module.

This module is also released with FirstSpirit 2018-12.

It enables customers and partners to easily switch between different Java versions for the operation of Java-based applications. The desired Java version can be selected server-wide for Microsoft Windows and macOS separately.

The included Java versions have been updated with the current release: In addition to the version delivered with the FirstSpirit Launcher ("Default"), Oracle Java 8u181, the following Java variants are currently available:

- OpenJDK 11.0.1

- Oracle Java 8u191 (EAP)

The versions in the "EAP" category are those that are planned for use in a future FirstSpirit version. These versions should initially only be used on testing systems, and potential problems should be relayed to e-Spirit in a timely fashion.

Note on Upgrade: If the module was already used in an earlier version, it must first be uninstalled on the server when upgrading to FirstSpirit 2018-12 and the module version from 2018-12 must then be reinstalled.

For further information please see also documentation for the module "FirstSpirit Launcher JRE". The module and the documentation may be obtained from Technical Support (https://help.e-spirit.com).

23 Release of Oracle Berkeley DB version 7   5.2R21

The latest FirstSpirit version has officially released the use of the integrated Berkeley DB in version 7, as well as the use of the "BerkeleyUtil" (`BerkeleyUtil.jar`) conversion tool. At the same time, support for Berkeley DB versions 3 and 5 is scheduled to be discontinued by November 2018 (FirstSpirit version 5.2R27 or 2018-11).

What does this mean?

FirstSpirit uses Berkeley DB for two purposes: for the repositories of individual projects ("project repositories"), and for storing system data ("internal repositories" such as the registry, archiving database, and access control database). Both purposes are affected by an update to version 7 and must be handled as necessary on existing FirstSpirit Servers. Where the technical requirements are concerned, the data stored in the Berkeley DBs must be converted to the new data format. This is normally carried out in a few seconds.

A server-wide switch to version 7 must be executed before the support for versions 3 and 5 is discontinued, as any FirstSpirit Servers that are still running version 3 and/or 5 **will no longer start** after this time. We therefore recommend switching from version 3 or 5 to 7 as soon as possible.

Berkeley 7 is not compatible with Java 7. The FirstSpirit Server therefore requires at least Java 8 in order to use Berkeley 7.

FirstSpirit projects that are created or imported with version 5.2R21 or higher will automatically use version 7 of Berkeley DB for internal repositories as standard. (The *FirstSpirit Manual for Administrators* has not yet been updated at the relevant location: it still assumes that version 5 is used by default (Chapter "FirstSpirit ServerManager / Project properties / Repository"). The text segment will be adapted as of the next publication.)

Further optimizations have been made in the latest FirstSpirit version. See chapter "Further optimizations to "BerkeleyUtil"".

For information converting via the GUI or the conversion tool, see *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Repository".

24 Welcome to the Release Notes for FirstSpirit Version 5.2 Release 2!

  5.2R2

These release notes contain an overview of all new functionality, improvements, and bugfixes in FirstSpirit Version 5.2 Release 2.

Release notes for FirstSpirit release versions ("R") are generated using FirstSpirit. As of this new version, we are increasingly using datasets in order to profit from the more comfortable reuse and sortability of content. Furthermore, the use of datasets enables integration with the internal bug tracking database: this is another building block in the software-supported interlocking of work items and deliverables of the FirstSpirit Core Development, Quality Assurance, and Documentation groups.

The use of an additional FirstSpirit project in the development group that maintains and enhances FirstSpirit provides yet another valuable opportunity to test FirstSpirit in everyday use.

This document's header line indicates the FirstSpirit build to which these release notes apply: the bold number (in this edition of the document, "210") indicates the build version which has officially been released for the FirstSpirit release version ("5.2 Release 2"). For better traceability, the header also lists all previously released build versions of the corresponding minor version line (in this edition of the document, "102"). The first digit of a three-digit build version number generally indicates the release version: build version numbers of the format "1xx" indicate Release 1, while build version numbers of the format "2xx" indicate Release 2.

The first chapters of these release notes contain descriptions of new features which are roughly grouped by target audience and include references to FirstSpirit documentation.
The chapter "Overview" provides a list of the new functionality which has been implemented in the current version as well as a table of bugfixes relevant to this version, categorized and sorted by their ID in the internal bug tracking system. The bugfix categories contain links to the third section of this document ("Categories") which lists all bugfixes by category, again in tabular form. Here, you can quickly find changes made to the functionality groups that you find relevant. For easier navigation in the document, you can click on a bugfix ID in the "Categories" chapter to return to the overview.
Several IDs in the internal bug tracking system may be merged into one release notes comment (in this edition of the document, e.g. "175454" and "176337") if several changes to one aspect of the software cause similar effects, or if several bugfixes share a common cause but each bugfix affects the software's behavior in a different way. If several bug reports share a common cause, bugfix measures are often only applied using one ID in the internal bug tracking system but cover related bug report IDs as well. Related IDs are shown below the main ID.

25   Notes concerning downgrades / upgrades 5.2R4

Usually, FirstSpirit versions are forward and backward compatible if only the number of the minor or build version changes. When upgrading to FirstSpirit version 5.2R4 or downgrading please take into account the following notices:

Upgrade

It is recommended for all FirstSpirit server updates to newly create all self-produced modules vis-a-vis the new FirstSpirit version In addition to this, all the installed modules delivered by e-Spirit and all web applications should also always be updated. Especially, the protocol for FirstSpirit web applications has changed in FirstSpirit version 5.2R4 (see also chapter "Administration: Modified protocol for FirstSpirit web applications").

Downgrade

FirstSpirit Servers can not be downgraded to FirstSpirit version 5.2R3 or older by means of an inplace downgrade because of the update of the integrated Apache Derby database. Error report after downgrade:

```
ERROR XSLAN: Database at [path] has an incompatible format with the current version
  of the software. The database was created by or upgraded by version 10.12.
```

Workaround: Export with FirstSpirit version 5.2R4 and import with FirstSpirit version 5.2R3.

See also chapter "System: Integrated Software".

26 Notes about General Data Protection Regulation (GDPR) `2018-06`

The General Data Protection Regulation (GDPR) is a regulation of the European Union which protects European citizens' basic right to privacy and regulates the handling of personal data. Personal data is any information through which a person can be identified either directly (e.g. name, e-mail address) or indirectly (e.g. customer account number, IP address).

Editorial data:
The content management system FirstSpirit stores data and documents that may be published in various publication channels. The character and amount of that data - in the following, this shall be called **editorial data** - depends on the specific uses of the product.

> **!** The vendor e-Spirit explicitly indicates that the customer is responsible for auditing editorial data to identify if it contains personal data and for taking appropriate measures.

Personal system data:

In addition to editorial data, FirstSpirit also stores personal data (contact data of editors) which is used in various places in the software, e.g. in the version history and in release workflows, such that the editor of a page may be contacted if necessary. In the following, this data shall be called **personal system data**.

e-Spirit AG takes the protection and security of your data very seriously. Naturally, we adhere to the statutory data protection regulations and handle personal data and also non-personal data of our users with appropriate care. We only collect personal data when it is necessary for the security and operability of FirstSpirit:

1. Data for authorization and authentication of users in FirstSpirit: FirstSpirit works with a pervasive user and permissions system. This ensures that only authenticated users can gain access to FirstSpirit and that these users may edit project content only according to the permissions that are granted to them. The login credentials of single users are stored in the XML file `user.xml` (located in the subdirectory `data/users` within the FirstSpirit server directory).

2. Data for error analysis and error remediation in FirstSpirit (logging): FirstSpirit uses log files in order to log actions on the FirstSpirit server and within FirstSpirit client applications (e.g. SiteArchitect, ServerManager). Log files can be used to analyze and remediate error states. Some of the log files used by FirstSpirit contain - among other data - IP address, login name, date, time, and request, and thusly personal data. Log files are written to the subdirectory `/log` of the FirstSpirit server directory.

3. Data for versioning and restoration of editorial processes (repository): One goal of data storage in FirstSpirit is the gapless traceability of all editorial modifications ("Version history"), but also the access to "system states of the past" (e.g. "Restore deleted objects"). For this purpose, FirstSpirit provides a content repository. In standard installations of FirstSpirit, an embedded Berkeley database is used as storage backend.

More detailed information on storing, processing and removing this personal system data can be found at *FirstSpirit Manual for Administrators*, Chapter "Notes about GDPR".

27   Indexing of referenced datasets ("indexing.maxNoOfAssociations")

5.2R12

As of the current FirstSpirit version, it is possible to more precisely control indexing of referenced datasets.

The `indexing.maxNoOfAssociations` parameter will no longer be evaluated. If it is used in existing configurations, it should be removed from the configuration file `fs-server.conf` and replaced appropriately with the new parameters `indexing.relationshipPathLengthToFollow` and `indexTreatment`.

For a more detailed description of the new parameters please see Chapter "Controlling indexing of referenced datasets".

28   Incompatibilities with specific Java versions   5.2R7

FirstSpirit is always released for a main version of a JDK. For FirstSpirit version 5.2R7, for example, this is Oracle Java 7 and 8. JDK updates are regularly issued as part of JDK bug fixes. These updates are checked for compatibility with FirstSpirit as part of quality assurance. In very rare cases, bugs in the JDK that cannot be bypassed by programming may cause incompatibilities. These bugs are not related to FirstSpirit.

> **!**   Due to a bug that occurs when checking the signature of Jar files in older Java versions, Java **7u76** or higher must be used for FirstSpirit version 5.2R7 and above.

FirstSpirit SiteArchitect and ServerManager, for example, will not start with defective Java versions.

For more information on which Java versions can be used, see the *FirstSpirit Technical Data Sheet*.

29   Java Support   2018-10

As expected, Oracle released Java 11 on 25 September 2018. Besides the exhaustive tests which were conducted with the various release candidates of Java 11, tests with the officially released version are also conducted since its publication. So far, the tests have shown that both FirstSpirit server as well as SiteArchitect and ServerManager are generally executable with OpenJDK 11. Some software

components included in FirstSpirit are currently not yet officially compatible with Java 11, so the current status for Java 11 use remains "EAP".

The following limitations are currently known:

- When using the service "JettyService" (Jetty Web Server), it is possible that exceptions are thrown (`java.lang.ClassNotFoundException: sun.reflect.Reflection`). Effects on functionality were not observed thus far. e-Spirit has worked on a solution in collaboration with the Eclipse Jetty project. As soon as the Eclipse Jetty project publishes a new version, the Jetty version in FirstSpirit will be updated as well.

- The version of ASM included in FirstSpirit currently only features experimental Java 11 support. As of the upcoming version 7.0, ASM will also feature official Java 11 support. Upon publication of that version, the ASM version in FirstSpirit will be updated as well.

As of FirstSpirit 2018-10, client-side use of Java 11 now also receives the status "EAP". Use of Java 11 for FirstSpirit SiteArchitect and ServerManager requires use of FirstSpirit Launcher. In order to facilitate easier participation in the "EAP" for Java 11, e-Spirit has developed a specific Launcher module named "FirstSpirit Launcher JRE".

In light of the increasing publication frequency of Java versions, it is nearly impossible for e-Spirit to exhaustively test every Java version in every possible combination and configuration with potential operating systems and interfaces to third-party systems. With this new module, customers and partners can test new Java versions ("EAP") and determine by themselves if these versions are executable within their existing IT infrastructure. EAP versions should initially only be used on testing systems, and potential problems should be relayed to e-Spirit in a timely fashion. Using this module, switching to another version can be done easily with just a few clicks.

In the future, this module will allow e-Spirit to offer its customers/partners the opportunity to choose a Java version when the FirstSpirit Java version is updated. Customers/partners will then be able to choose from among the current released, the previous released, and the next planned Java version.

Currently, the module is shipped with Oracle Java 8 ("Default"), OpenJDK 11 ("EAP"), and AdoptOpenJDK 8 ("Experimental"). The current "Experimental" version serves testing purposes. With 2018-10, the FirstSpirit Java version was not updated. A version previously released for use with FirstSpirit (e.g. Oracle Java 8u171) was not added to the module.

e-Spirit is currently expending more effort on gaining independence from Oracle Java. For the Launcher, FirstSpirit still ships an Oracle Java 8 version. According to the above-mentioned "EAP" program, in a future version of FirstSpirit, OpenJDK 11 will become the preferred and shipped Java version. Because Oracle has also changed support for Java 8 for 2019 (see also https://www.oracle.com/technetwork/java/javase/eol-135779.html), e-Spirit is currently testing Java 8 versions of other vendors.

Because the OpenJDK project neither builds nor publishes Java 8 JDKs, e-Spirit is currently testing if the OpenJDK variant of the AdoptOpenJDK project (https://adoptopenjdk.net/) can be used as a replacement for Oracle Java 8. Use of AdoptOpenJDK is to be regarded as "experimental", i.e. it is not foreseeable at this time if a FirstSpirit-specific release of AdoptOpenJDK 8 is possible. Support for AdoptOpenJDK versions greater than 8 is not planned because e-Spirit focuses on using the original versions of the OpenJDK project here.
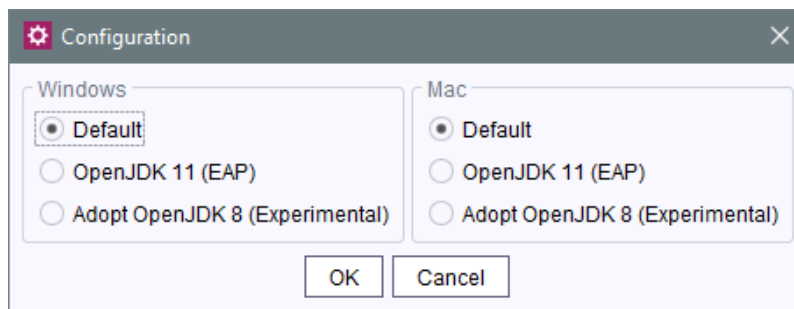
The desired Java version can be selected server-wide, but separately for Microsoft Windows and Macintosh systems.

Category "Default" (FirstSpirit Java present)
The category "Default" represents the version that was shipped with FirstSpirit and is being used by the Launcher. It was tested successfully and released for use with FirstSpirit by e-Spirit.

Category "EAP" (FirstSpirit Java future)
The versions in the "EAP" category are those that are planned for use in a future FirstSpirit version. The specific versions that are included in the module depend on the third-party vendors' Java release planning and will thus be continually modified with subsequent FirstSpirit releases.

Category "Legacy" (FirstSpirit Java past)
The versions in the "Legacy" category are those Java versions that have previously been released for use with FirstSpirit. Currently, the module does not include a Java version in this category. As of the

FirstSpirit-specific release of Java 11, the first legacy version to be included in the module will be a Java 8 version.

The module may be obtained from Technical Support (https://help.e-spirit.com).

30   Java support (Oracle Java 9) 5.2R13

FirstSpirit 5.2 is compatible with Oracle Java 7 and Oracle Java 8 (for information on restrictions and reference versions please see "FirstSpirit Technical Datasheet").

Internal testing has shown that FirstSpirit is not compatible with Oracle Java 9, which will be officially released in September 2017. However it is intended to support Java 9 in the future.

31   Java: Current status and outlook 2018-06

Java 7: Cessation of support
As scheduled, support for Java 7 has ceased with the latest version of FirstSpirit: FirstSpirit Servers will no longer be able to run with Java 7. This affects both Oracle Java and the OpenJDK variant. Cessation of support also means that e-Spirit AG will no longer implement any measures designed to eliminate errors or problems associated with Java 7.
Oracle itself has not provided any public updates for Java 7 since 2015 and recommends that developers and end users transition to more recent versions of Java in order to continue receiving public updates and security enhancements.

Java 8, 9, and 10
FirstSpirit will continue to support Oracle Java 8. However, Oracle is planning to discontinue support for Java 8 at the start of 2019. As Oracle has now ceased development of Java 9 and security updates are no longer being issued, this version will no longer be maintained in FirstSpirit.
e-Spirit is currently recommending that Oracle Java 8 continues to be used for all productive systems for the time being. Due to Oracle's product release plans, FirstSpirit customers will certainly need to make plans for/consider migrating to a more recent version in the foreseeable future.
In this regard, please note that when FirstSpirit ceases to support Oracle Java 8, it will also no longer support the Windows Installer (an executable file used to install the FirstSpirit Server on Windows systems) and thus the Windows Installer will no longer be available (Oracle has announced that public support for Oracle Java 8 will cease in January 2019).

Java 10 is being released with the latest version of FirstSpirit. The FirstSpirit server component is already running reliably under Java 10 and, although tests are still ongoing on the client side, there have been no problems thus far. The incompatibility issue affecting the use of Oracle Java 9+ for the FirstSpirit Server and Java 8 or earlier for FirstSpirit SiteArchitect (restoration of older revisions in SiteArchitect, error message: `java.io.InvalidClassException: java.util.EnumSet; local class incompatible:...`) has been resolved.

According to the latest product release information from Oracle, manufacturer support for Oracle Java 10 will be discontinued in September 2018.

Oracle Java vs. OpenJDK

In previous years, many Java versions have been beset by security vulnerabilities and bugs time and time again. e-Spirit has always responded to these quickly. Oracle's new release policy continues to be a source of uncertainty for e-Spirit. It is unclear, for example, to what extent Java versions that are free of charge will be available in the future. Furthermore, there is a chance that fundamental functions (e.g., "Java Web Start" in particular) will no longer be supported. This technology, which provides users with a convenient way of starting FirstSpirit SiteArchitect and ServerManager from within a browser, is being discontinued by Oracle and will likely cease to be available at all from the end of 2018.

To reduce dependency on Oracle's Java development and also so that longer-term plans can be made for the benefit of our customers, e-Spirit will increase its focus on the use of OpenJDK. OpenJDK is the officially free to download implementation of Java SE ("Java Platform, Standard Edition"). It is published under the GNU General Public License (GPL). OpenJDK does not support the full functional scope of Oracle Java. In technical terms, the version numbers of Oracle Java and OpenJDK are comparable: Oracle Java 10 (18.3 according to the new version schema) is thus comparable with OpenJDK 10.

We plan to test the latest OpenJDK versions regularly for use with FirstSpirit, release them and also designate them as reference versions.

The use of OpenJDK (version 10) with FirstSpirit is being released for the first time with the latest version of FirstSpirit. Since OpenJDK does not support an option to start Java applications with browsers, OpenJDK 10 is initially being released for the FirstSpirit Server. Conversely, Oracle Java 10 is being released in addition to Oracle Java 8 for FirstSpirit SiteArchitect and ServerManager.

See also the *FirstSpirit Technical Data Sheet* for information about supported Java versions. For information about Oracle product releases, see http://www.oracle.com/technetwork/java/eol-135779.html.

Java Web Start alternative

We are also looking to cease dependency on Oracle Java on the client side. As an alternative to the Web Start technology which is likely to be discontinued at the end of the year, e-Spirit is currently developing a new and optimized version of the FirstSpirit Launcher. The Launcher has for some time supported starting and running FirstSpirit SiteArchitect and ServerManager without Java being installed on FirstSpirit users' workstation PCs. To make this work, the FirstSpirit Launcher rolls out its own JRE during the installation process. The Java version used in the Launcher is being selected and extensively tested by e-Spirit. The use of Java versions that have previously been identified as problematic can thus be avoided. Another positive feature of the Launcher is that incompatibilities or version conflicts with other Java products installed on the system can no longer occur. An initial version of a new Launcher that supports both Windows and Mac OS will be made available in a future FirstSpirit release.

Migration from Java 8 to Java 10
Using existing FirstSpirit installations with Java 10 will require slight changes to configuration files in the file system:

1. An in-place upgrade must first be performed on the required FirstSpirit Server (for more information, see the FirstSpirit installation instructions, "Via tar archive" chapter for non-Windows systems or "Updating via the installation program" chapter for Windows systems). This updates the start script automatically (`fs5` for Linux, `fs5.cmd` for Windows).

2. Replace the `fs-wrapper.conf` file (or, for servers running in "isolated mode", the `fs-wrapper.isolated.conf` file) from the FirstSpirit *~\conf* subdirectory with the content of the `fs-wrapper.conf.default.txt` file (or the content of the `fs-wrapper.isolated.conf.default.txt` file) from the *~\conf\conf-all* subdirectory and apply the specific changes made in the `fs-wrapper.conf` file.

If you are using FirstSpirit with Java 9 and higher as a Windows service, in the `fs-wrapper.conf` or `fs-wrapper.isolated.conf` file, the line

```
#include.required ../conf/fs-wrapper-j1.include.conf
```

must be changed to:

```
#include.required ../conf/fs-wrapper-j2.include.conf
```

In the case of **new installations**, the files listed above do not have to be replaced.

Installation in Microsoft Windows

For an installation in Windows, a FirstSpirit server in Java 8 must first be installed via Windows Installer, as outlined in the FirstSpirit installation instructions in the chapter "Installation under Windows". Installation using the Windows installation programs `firstspirit-setup-<version number>.exe` or `firstspirit-isolated-setup-<version number>.exe` is not possible.

Then the path to Java 9 (`wrapper.java.command` parameter) and other parameters must be entered in the `fs-wrapper.conf` or `fs-wrapper.isolated.conf` file in order to meet prevailing individual requirements.

In addition, in the `fs-wrapper.conf` or `fs-wrapper.isolated.conf` file, the line:

```
#include.required ../conf/fs-wrapper-j1.include.conf
```

must be changed to:

```
#include.required ../conf/fs-wrapper-j2.include.conf
```

Restrictions

The following restrictions are currently known relating to the use of Oracle Java 9 and higher; they cannot be bypassed by programming:

- Oracle no longer offers Java version 9 and higher in a 32-bit variant, i.e., when using Oracle Java 9 and higher, FirstSpirit can now only run on 64-bit platforms or with 64-bit applications.

- Due to advanced security checks in Java 9 and higher, delays arise in particular on launching on the client side and when first running functionalities that have been loaded afterwards.

- There may be compatibility problems between version 8 and versions 9 and higher of the Oracle Java Runtime Environment (JRE) that is required to launch FirstSpirit SiteArchitect. In Windows, the FirstSpirit Launcher permits a simpler change back to Java 8.

- Some functions in FirstSpirit are based on third-party software. Not all vendors of this third-party software have undertaken conversion work to ensure compatibility with Java 9 and higher. Consequently, functions that are based on third-party software of this kind will not be available if FirstSpirit is running with Oracle Java 9 and higher. Operating system-specific third-party

applications in the AppCenter of FirstSpirit SiteArchitect is no longer supported in Oracle Java 9 and higher, for example (exception: the browser integration).

- The parameters of the wrapper files `fs-wrapper-j#.include.conf` cannot be edited like the default wrapper file `fs-wrapper.conf` via FirstSpirit ServerMonitoring. However, the file can be edited in the file system.

- The Jetty web server integrated into FirstSpirit will not run under Oracle Java 9. The `fs-jetty.fsm` (EAP) module can be used instead.

- The "Keep temporary files on my computer" option for Java Web Start must be selected under Oracle Java 9 and higher so that FirstSpirit SiteArchitect and FirstSpirit ServerManager can be launched. Under Oracle Java 8 this could also be deselected. Therefore, we recommend checking this setting when changing to Oracle Java 9 and higher (tab "Web settings / Temporary Files Settings"):
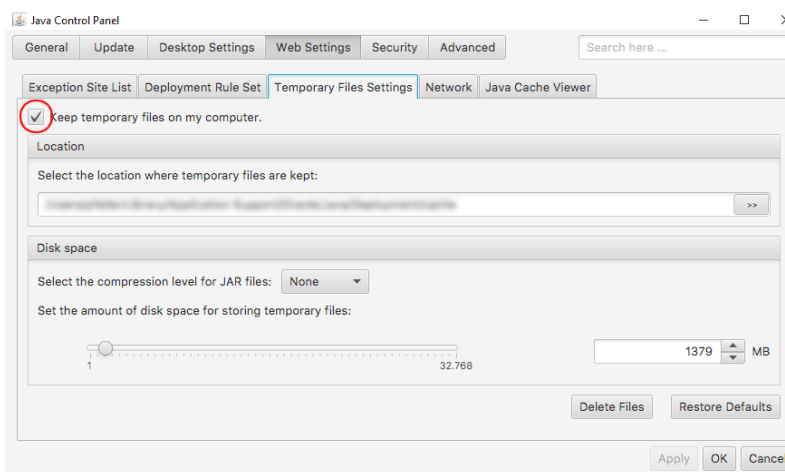
Downgrade notice

Oracle Java 9 and higher differs from Oracle Java 8 in terms of its encryption options and standard encryption. Changing a JDK is problematic (e.g., from Oracle Java 9 to Oracle Java 8) if the repository has been encrypted using a method that is not supported by the destination JDK. The project will then no longer start following a change of JDK. However, this problem can be resolved by making a change to the `java.security` configuration file under "[JRE_home]/lib/security/".

For more information, see also http://www.oracle.com/technetwork/java/javase/8u151-relnotes-3850493.html.

32 Microsoft Edge Support 5.2R20

As of the current version of FirstSpirit, Microsoft Edge may be officially used for work with FirstSpirit ContentCreator.

33 New user interface for the trouble ticket system 5.2R5

The user interface of the trouble ticket system for the e-Spirit Technical Support has been greatly enhanced to provide better access to the most important information and functionality. Starting today you can, for example, find information about planned release dates of upcoming FirstSpirit versions and answers to frequently asked questions. Naturally, we will continuously update and extend the information available.

You can find the new Help Center at https://help.e-spirit.com. It replaces the previous address *helpdesk.e-spirit.com*.
In addition, please use help@e-spirit.com instead of the previous e-mail address *helpdesk@e-spirit.com*.

34 New release names 2018-06

e-Spirit releases a new FirstSpirit version approximately 12 times per year. All releases are generally equivalent and compatible with the previous version, which means that it is no longer necessary to make a distinction between "maintenance", "release," "minor", and "major" builds. In this way, new FirstSpirit functions are quickly provided to customers and the software quality is continuously enhanced. There is a balanced mix of bug fixes and new features in each release.

This strategy will now be reflected more clearly in the names of individual releases. For this purpose, a new release name schema is being implemented with the latest FirstSpirit release. This is based on the release year and month:

```
FirstSpirit <YYYY>-<MM>
```

FirstSpirit version 5.2R21, which was released in mid-May, is being followed by the latest version, "FirstSpirit 2018-06". A version released in July 2018 would be called "FirstSpirit 2018-07", and so on. This makes it possible to determine the release period quickly and easily based on the release name and, therefore, identify whether the software status of a FirstSpirit installation is up to date.

As well as being used in familiar places (in info dialogs, for example), the version name is also displayed in a dialog which appears when you click the version information on the FirstSpirit start page.
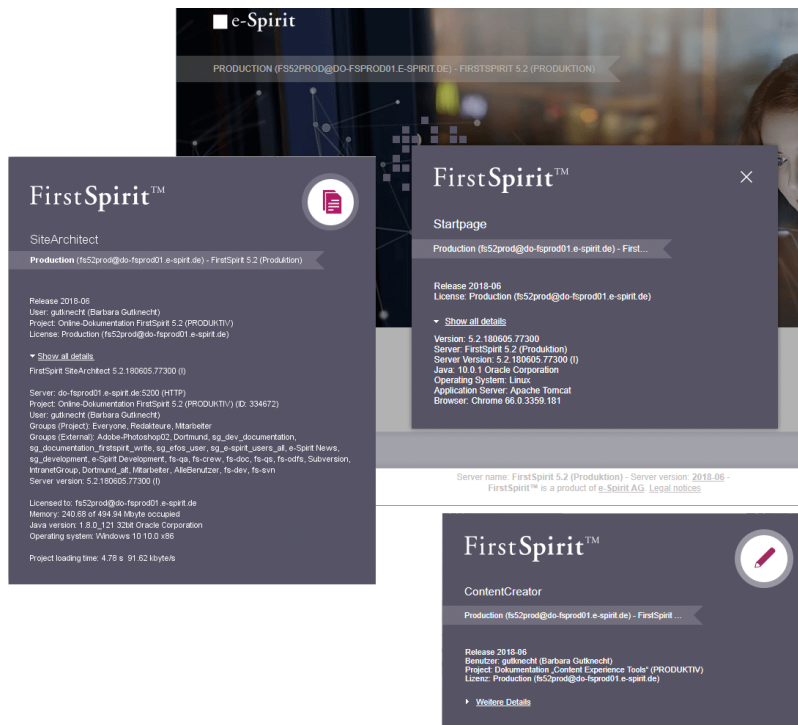
The technical version numbers consisting of major, minor, and build numbers continue to be used in the background. These version numbers also now include the number of the month and year, e.g., "5.2.180605.77284" or "5.2R1806-180605".

Designations identifying previously released versions (e.g., "5.2R21" or "5.2.2108.77241") are being retained and will not be renamed.

For more information on the FirstSpirit release strategy, see the FirstSpirit Community (https://community.e-spirit.com/docs/DOC-2073).

35   Innovations concerning the FirstSpirit Release Management 5.2R12

e-Spirit develops software on the basis of a continuous improvement process. The aim is to develop functions in an agile and needs-based manner, to make them available to customers more quickly, and to continue elevating the quality of the software. This means that:

- New features and extensions are released immediately after development, testing, and documentation – irrespective of the version number.

- Wherever possible, large extensions are rolled out incrementally – even if a feature has not yet achieved its full intended range of functions, an initial version is released as soon as it provides a useful additional benefit (minimum viable product). Additional features and convenience functions are then gradually added in the following releases.

- There are no more big-bang releases. Releasing features immediately allows the software development output to be distributed evenly over time.

This approach affects our usual handling of FirstSpirit version updates and involves new best practices. For more information, please refer to FirstSpirit Community (https://community.e-spirit.com/docs/DOC-2091).

36   New design of the FirstSpirit documentations   2018-11
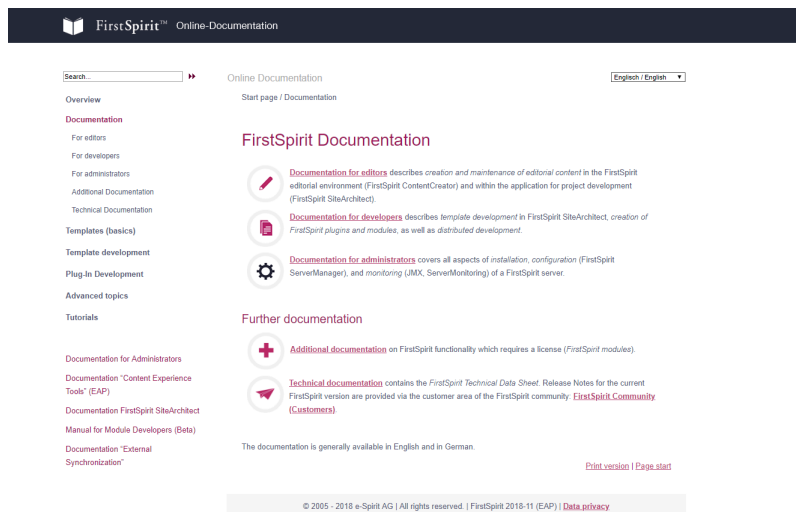
New ODFS starting page

In the course of the rebrush, the FirstSpirit documentation is receiving a fresh look. Many frames, obsolete icons, superfluous formatting and highlighting - all of this was restructured, tidied up and in some cases removed. Of course you will still find all content in the usual places.

Our new layout is clearer, more readable and tidier: modern icons, new color scheme and improved type face.

You can get an impression of the new layout at http://docs.e-spirit.com.

37 Oracle Berkeley DB 5.2R19

Oracle Berkeley DB is used in FirstSpirit as a repository for saving content data. Until now, versions 3 and 5 have been in use and running reliably and stably for many years. However, in order to benefit from performance advantages, to remain at the forefront of technical development, and last but not least, for security reasons, plans are in place to update the internal Berkeley DB to version 7 in the near future.

FirstSpirit uses Berkeley DB on the one hand for the repositories for the individual projects ("project repositories"), as well as for storing system data ("internal repositories", for example registry, archiving database, access control database). Both places where these are used are affected by an update to version 7 and must be handled accordingly on existing FirstSpirit servers: from a technical point of view, to do this the data stored in the Berkeley DBs must be converted into the new data format. This is normally carried out in a few seconds.

Since FirstSpirit version 5.2R18, individual project repositories can also be converted to version 7 as part of the Early Access Program ("EAP").

FirstSpirit version 5.2R19 provides a conversion tool (also as part of the Early Access Program ("EAP")), that can be used for the simple conversion of all data stored in existing FirstSpirit servers with just a few commands ("project repositories" and "internal repositories"). For more details, see the "Conversion of the Oracle Berkeley DB (EAP)" chapter.

Berkeley 7 is not compatible with Java 7. The FirstSpirit Server therefore requires at least Java 8 in order to use Berkeley 7.

Compatibility of FirstSpirit versions
An official release of Berkeley version 7 is intended for FirstSpirit version 5.2R20 or R21 (April/May 2018). Following a transitional period, during which Berkeley versions 3, 5, and 7 will be able to be used in parallel on FirstSpirit servers, it is planned – for reasons relating to maintainability – to only offer version 7 and to withdraw support for versions 3 and 5 from around the end of 2018. After this point in time, FirstSpirit servers which are still running version 3 and/or 5 will then no longer start. Consequently, a server-wide switch to version 7 must be completed by this date. Switching from version 3 or 5 to 7 at the earliest possible opportunity is therefore recommended.
Following a conversion to Berkeley version 7, a FirstSpirit downgrade to versions earlier than version 5.2R18 will no longer be possible. A downgrade to FirstSpirit version 5.2R18 is possible, however.

For downgrading servers which have not been converted yet, the file `fs-berkeleydb7.fsm` should be manually deleted from the `../data/modules` sub-directory.

38 Oracle Berkeley DB 7 `5.2R18`

Oracle Berkeley DB is used in FirstSpirit as a repository for saving content data. Until now, versions 3 and 5 have been in use and running reliably and stably for many years. However, in order to benefit from performance advantages, to remain at the forefront of technical development, and last but not least, for security reasons, plans are in place to update the internal Berkeley DB to version 7 in the near future.

FirstSpirit uses Berkeley DB firstly for the repositories of individual projects ("project repositories") and secondly to save system data ("internal repositories", e.g., registry, archiving database, Access Control Database). Both points of use are affected by the update to version 7 and must be handled accordingly on existing FirstSpirit servers: From a technical point of view, the data saved in the Berkeley DBs has to be converted to the new data format. This normally takes just a few seconds.
From FirstSpirit version 5.2R19 (March 2018, planned), a conversion tool will be available, which will enable all data saved in the Berkeley DBs to be conveniently converted via command line to existing FirstSpirit servers in just a few commands. As server-level data also has to be converted, a conversion of this nature can only be performed when the FirstSpirit Server is offline in order to prevent any loss of data. A conversion will generally be completed in a short time. Only in exceptional cases may it take up to several hours; for example, in the event of very large and/or numerous projects. To make it easier for customers to calculate appropriate maintenance windows, plans are underway to publish comparison values relating to project size and conversion duration in future release notes. These values will have been established from conversions that have already been performed in production conditions.

FirstSpirit version 5.2R18 already allows individual project repositories to be converted to version 7, under the early access program ("EAP", see chapter "Oracle Berkeley DB 7"). This function can be used to gather experience on the conversion process. Should problems unexpectedly be encountered when using Berkeley 7, these should be reported to e-Spirit immediately to enable them to be resolved before the official release of Berkeley 7.
A conversion can generally be completed in just a few seconds. It is also possible to convert data back to an older Berkeley version; however, this takes much longer and requires additional disk space.

Berkeley 7 is not compatible with Java 7. The FirstSpirit Server therefore requires at least Java 8 in order to use Berkeley 7.

Compatibility of FirstSpirit versions

An official release of Berkeley version 7 is intended for the time frame between FirstSpirit version 5.2R19 and R21 (March to May 2018). Following a transitional period, during which Berkeley versions 3, 5, and 7 will be able to be used in parallel on FirstSpirit servers, it is planned – for reasons relating to maintainability – to only offer version 7 and to withdraw support for versions 3 and 5 from around the end of 2018. After this point in time, FirstSpirit servers which are still running version 3 and/or 5 will then no longer start. Consequently, a server-wide switch to version 7 must be completed by this date. Switching from version 3 or 5 to 7 at the earliest possible opportunity is therefore recommended.

Following a conversion to Berkeley version 7, a FirstSpirit downgrade to versions earlier than version 5.2R18 will no longer be possible. However, downgrading to FirstSpirit versions above 5.2.R18 will be possible. For a downgrade, the file `fs-berkeleydb7.fsm` should be manually deleted from the `../data/modules` sub-directory.

When switching from FirstSpirit version 5.2R17 or earlier to FirstSpirit version 5.2R27 or later, a conversion using the conversion tool must be completed beforehand.

39 Oracle Berkeley DB 7: Optimizations and tips on conversion time

5.2R20

Since the conversion tool "BerkeleyUtil", introduced in FirstSpirit version 5.2R19 could now be used in several production environments we were able to collect data on the conversion time. With this data the conversion process could be optimized in FirstSpirit version 5.2R20, and optimized configuration could significantly reduce the conversion time for some Berkeley configurations. It became evident that the amount of memory accessible for the conversion tool is most relevant for the conversion time, while the rest of the hardware being used is less important.

Since the FirstSpirit server can't be active during the conversion we recommend allocating as much memory to the conversion tool as the server would normally use.

To do this, when starting the tool with

```
java -jar <FirstSpiritROOT>/bin/BerkeleyUtil.jar
```

you can pass the value `#` stored in `fs-wrapper.conf` (or `fs-wrapper.isolated.conf`, respectively) for `wrapper.java.maxmemory` as the value to `-Xmx#m`.

Example:

fs-wrapper.conf:

```
...
wrapper.java.maxmemory=4000
...
```

The call should then be:

```
java -jar -Xmx4000m <FirstSpiritROOT>/bin/BerkeleyUtil.jar -c <FirstSpiritROOT>
```

Another parameter, to reduce server downtime, is converting projects individually. On a running server projects can be converted via the ServerManager (Project properties, area "Repository", drop-down "Backend"). The project being converted can not be used, but the others stay usable. The additional load while converting can have an impact on the server performance (comparable to a full generation of the respective project).

Tip: It is also possible to convert only some projects on the running server, and the rest later via the conversion tool. Projects already converted to Berkeley 7 will not be converted again when later performing a full server conversion with the conversion tool.

Lastly it is possible to convert repository databases with the "fast" option (-f). This is about 20 to 100 times faster than the "normal" conversion via dump/restore. But using this option errors have been observed, leading to an irreversibly damaged project, when projects already contained errors in their older Berkeley databases.
Because of this risk we recommend not using this option, when no current system backup is available. The risk when using this option can be minimized by validating projects before starting the conversion. This validation can be executed on a running FirstSpirit server. The results should be taken with a grain of salt, though, since new errors could be introduced in files already checked, or errors could be reported due to changes in progress while checking.

In any case a recent backup is recommended before converting the repository, whether using the "fast" option, or using just "normal" conversion.

Examples for conversion times

Big FirstSpirit server:

- more than 100 projects

- FirstSpirit directory > 1 TB, containing > 500 GB in Berkeley DB directories (without "blob" directories)

- contains one very big project ("bdb" directory > 250 GB)

Conversion time with 20 GB memory: < 12 hours
Conversion time with 4 GB memory: > 24 hours

Medium-size FirstSpirit server:

- 27 projects

- FirstSpirit directory < 1 TB, including > 250 GB in Berkeley DB directories (without "blob" directories)

- contains one big project ("bdb" directory > 50 GB)

Conversion time with 4 GB memory: < 6 hours

Medium-size FirstSpirit server:

- 27 projects

- FirstSpirit directory < 100 GB, including < 50 GB in Berkeley DB directories (without "blob" directories)

- "bdb" directory of the biggest project is about 25 GB

Conversion time with 20 GB memory: < 2 hours
Fast conversion of the same server: < 8 minutes

The list above distinguishes between the FirstSpirit server's "bdb" and "blob" directories because these are treated differently:
If a project is using Berkeley version 5, its "blob" directory is not modified during conversion. Is the project using Berkeley version 3, files from the "blob" directory are moved into new sub-directories, which does not affect conversion time.

The content of the "bdb" directories is exported to new files, though, unless you are using the `-f` option, and then imported to a newly created database.

Note: The given values are just reference values, because FirstSpirit setups differ substantially from customer to customer. A FirstSpirit server's conversion time depends very much upon number and size of projects, and upon the customer specific usage.

See also Chapter "Conversion of the Oracle Berkeley DB (EAP)".

40   Oracle Java   5.2R18

FirstSpirit 5.2 is currently released for use with Oracle Java 7 and Oracle Java 8.
Work on Oracle Java 9 support capability is currently underway, with the release planned for the near future.

Following a transitional period during which Oracle Java 7, 8, and 9 will be supported in parallel with each other, support for Java 7 will expire: From summer 2018, FirstSpirit will no longer support Oracle Java 7. This means that FirstSpirit will no longer be able to run with Oracle Java 7 and e-Spirit AG will no longer implement any measures designed to eliminate errors or problems associated with Java 7. Modules currently being developed by e-Spirit for the first time (e.g., "FirstSpirit Third Party Preview") are already optimized for Java 8 and no longer compatible with Oracle Java 7.

Not least because it is in the customers' interest, FirstSpirit preferably supports Long-Term Support versions. For development activities that have dependencies to Java, e-Spirit regards Oracle's release plan. Oracle itself has not provided any public updates for Java 7 since 2015 and recommends that developers and end users transition to Java 8 in order to continue receiving public updates and security enhancements. In the medium term, the aim is to provide FirstSpirit support for Java 10 or 11, since Java 9 is not a long-term support version (for more information, see http://www.oracle.com/technetwork/java/eol-135779.html).

From FirstSpirit version 5.2R18, support for Java 9 (for FirstSpirit Server and Clients) will be part of the early access program ("EAP"). Using existing FirstSpirit installations with Java 9 will require slight changes to configuration files in the file system

Due to the extended security checks in Java 9, the use of this Java version will lead to slowdown, especially during client start-up and during the first execution of functionality that is dynamically downloaded by the client.

If Java 9 is being used, a corresponding message is logged when the Server is started.

In cases where Oracle Java 9 is being used, it is important to note that some functions in FirstSpirit are based on third-party software. However, not all vendors of third-party software have converted it in order to ensure compatibility with Java 9. Consequently, functions that are based on third-party software of this kind will not be available if FirstSpirit is being operated with Oracle Java 9. See also Chapter "Using Java 9 (EAP)".

41 Oracle Java `5.2R19`

Release Plan for Oracle 9, 10 and 11
FirstSpirit is currently released for use with Oracle Java 7 and Oracle Java 8.
Since FirstSpirit version 5.2R18 (February 2018), Oracle Java 9 is supported as part of the Early Access Program (EAP). Work is currently in progress on support for Oracle Java 10 (in accordance with the new version scheme: 18.3); at present FirstSpirit does not run on Oracle Java 10 however.

In the interest of the customer, FirstSpirit supports Long-Term-Support (LTS) versions as a priority. In the case of Oracle Java, it is planned to support at least the current Java version and the last LTS version up to the end of public updates for Oracle ("End of Public Updates"). Variants that do not have LTS status will no longer be officially supported by FirstSpirit following the end of public updates. This means that for these versions, no further tests on compatibility with FirstSpirit and no measures to resolve any problems arising will be undertaken. For the Java Release Plan from Oracle, see also http://www.oracle.com/technetwork/java/eol-135779.html.

Summary of the currently supported Java versions (as at March 2018):

- Java 8 (last LTS version)

- Java 9 ((EAP), current Java version)

- In addition, Java 7

The next LTS version is Oracle Java 11 (18.9 LTS), which is set to be released in September 2018 by Oracle. For FirstSpirit, support for this version is planned from the third quarter of 2018. Version 8 will be supported by FirstSpirit up to the end of Oracle public support (at least January 2019).

FirstSpirit and Oracle Java 9+

The use of Oracle Java 9 with FirstSpirit is currently still in EAP status (Early Access Program). A prompt release is sought, but some minor problems have arisen in the use of Java 9 in test operation. These will soon be rectified in coming releases.

The move to the use of Java 9 (both at e-Spirit and with customers) is central, as on the one hand the difference from Java 8 is relatively great from a technical point of view, but on the other hand Java 9 has only be supported by Oracle since very recently. The move from Java 9 to Java 10 and 11 is likely to have fewer implications from a technical standpoint, however, meaning the change from Java 9 to Java 10 or 11 will not be as involved. Problems arising when using Java 9 will very likely also occur with a change from Java 8 to Java 10 or 11.

In general, features in EAP status will already have reached a level of maturity where it can and should be used by customers. However, it should initially be used on test systems and potential problems notified to e-Spirit promptly. Customer feedback is actively encouraged.

The following technical restrictions are currently known relating to the use of Oracle Java 9 (and higher where applicable):

- The third-party component used in FirstSpirit, **Beanshell**, is not yet fully compatible with Java 9. This means that some Beanshell scripts run with errors in FirstSpirit with Java 9. This is currently considered by e-Spirit to be preventing for the approval of Java 9. As soon as a Beanshell update is available, it will undergo intensive testing with a view to reassessment for approval (we suspect that Java 10 will have been released by then).
  Current workaround:
  The problem can be circumvented in Microsoft Windows making the parameter setting `--illegal-access=warn` in the Java Control Panel ("Start / Configure Java") for the corresponding Java version ("Desktop settings" tab):
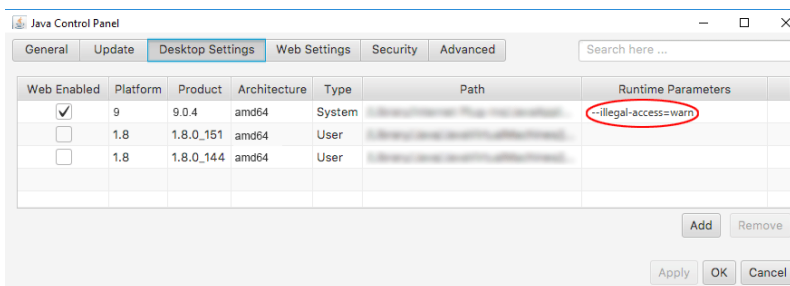
(Note: Multiple parameters can be specified separately using a semicolon.)

- Oracle does not offer Java 9 in more than one **32 bit** variant, i.e. when using Oracle Java 9, FirstSpirit can now only be run on 64 bit platforms or with 64 bit applications. The option to run FirstSpirit under 32 bit will be discontinued in the medium-term.

- Due to advanced security checks in Java 9, **delays** arise when using this Java version, in particular on launching on the client side and when first running functionalities that have been loaded afterwards.

- The **Windows Installer** cannot be used under Java 9. If a new FirstSpirit Windows Server is to be operated under Java 9, an installation should first be carried out using the Windows Installer under Java 8 and then a migration to Java 9 carried out (for more details, see FirstSpirit Release Notes on version 5.2R18).

- The Oracle Java Runtime Environment (**JRE**) that is required to launch the FirstSpirit SiteArchitect, is potentially not compatible between versions 8 and 9. A change from Java 9 back to 8 requires a number of manual configuration modifications. In Windows, the FirstSpirit Launcher permits a simpler change back to Java 8.

- The "Keep temporary files on my computer" option for Java Web Start must be selected under Oracle Java 9 so that FirstSpirit SiteArchitect and FirstSpirit ServerManager can be launched. Under Oracle Java 8 this could also be deselected. Therefore, we recommend checking this setting when changing to Oracle Java 9 (tab "Web settings / Settings for temporary files").
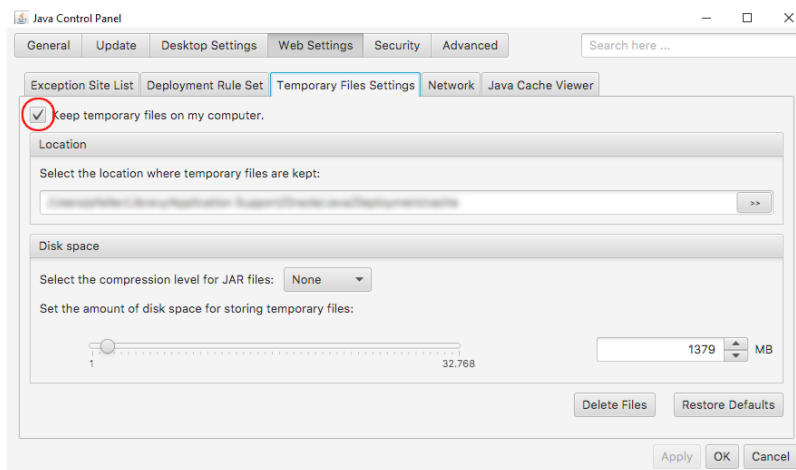
- The parameters of the wrapper files `fs-wrapper-j#.include.conf` cannot be edited like the default wrapper file `fs-wrapper.conf` via the **FirstSpirit ServerMonitoring**. However, the file can be edited in the file system.

- It is not currently possible to copy any text from the integrated preview in the FirstSpirit SiteArchitect using a keyboard shortcut `Ctrl` + `C` . Alternatively, the context menu in the integrated preview can be used.

- Operating system-specific **third party applications** in the AppCenter of the FirstSpirit SiteArchitect will no longer be supported from Oracle Java 9 (exception: the browser integration).

- The Jetty web server integrated into FirstSpirit will not run under Oracle Java 9. The "fs-jetty.fsm" (EAP) module can be used instead.

42   Oracle Java 9   `5.2R14`

FirstSpirit 5.2 is supported when used with Oracle Java 7 or Oracle Java 8 (for limitations and reference versions, see "FirstSpirit Technical Data Sheet"). Internal tests have shown that FirstSpirit is not yet functional when used with Oracle Java 9. However, it is planned that FirstSpirit will be compatible with Java 9 in the future.

Currently, starting a FirstSpirit server or FirstSpirit clients on Java 9 will be prevented. A message will be logged:

```
Running FirstSpirit using Java 9 or newer is not yet supported! Your version: 9
```

43   Support of Oracle Java   `5.2R15`

Generally, FirstSpirit is released for use with a major version of a JDK, e.g. Oracle Java 8 (JDK 1.8). FirstSpirit 5.2 is currently released for use with Oracle Java 7 and Oracle Java 8.

Support of Oracle Java 9 is currently in development. Release of this support is planned for the near future.

After a transitional period, during which Oracle Java 7, 8, and 9 will be supported in parallel, support for Oracle Java 7 will end: as of summer 2018, FirstSpirit will no longer support Oracle Java 7. This means that FirstSpirit will no longer be operable under Oracle Java 7, and e-Spirit AG will no longer take measures to resolve errors or problems that are related to Java 7.

Modules which are currently being developed by e-Spirit (e.g. "FirstSpirit Third Party Preview") are already optimized for Java 8 and are not operable under Oracle Java 7.

Oracle has ceased to provide public updates of Java 7 in 2015 and recommends that developers and end users upgrade to Java 8 in order to continue to receive publicly accessible updates and security improvements.

44 Oracle Java: Discontinuing support for version 7 and other restrictions relating to version 9+ `5.2R21`

FirstSpirit is currently released for use with Oracle Java 7, 8, and 9; use with Oracle Java 10 is currently supported as part of the early access program ("EAP").

As part of product maintenance, discontinuation of support for Java 7 was announced with FirstSpirit version 5.2R15: FirstSpirit is scheduled to no longer support **Oracle Java 7** from June 2018 (FirstSpirit version 5.2R22 or 2018-06). This means that FirstSpirit will no longer be able to run with Oracle Java 7 and e-Spirit AG will no longer implement any measures designed to eliminate errors or problems associated with Java 7. We recommend that you switch to a higher Java version in good time.
Oracle itself has not provided any public updates for Java 7 since 2015 and recommends that developers and end users transition to Java 8 in order to continue receiving public updates and security enhancements.

Regarding the use of FirstSpirit with **Oracle Java 9+**, internal tests have shown that, in particular cases, incompatibilities can occur if the FirstSpirit Server uses Oracle Java 9+ and FirstSpirit SiteArchitect uses Java 8 or lower. For example, this affects the SiteArchitect function that restores older versions (error message: `java.io.InvalidClassException: java.util.EnumSet; local class incompatible:...`). This is caused by an incompatibility between the versions from Oracle, the manufacturer. e-Spirit is currently working on a solution to this problem.

45 Rebrush for FirstSpirit graphical user interfaces `5.2R17`

With the new FirstSpirit version comes a fresh design in a familiar software environment. A modern color scheme and style enhances the User Experience (UX) for editors and paves the way for upcoming FirstSpirit extensions.
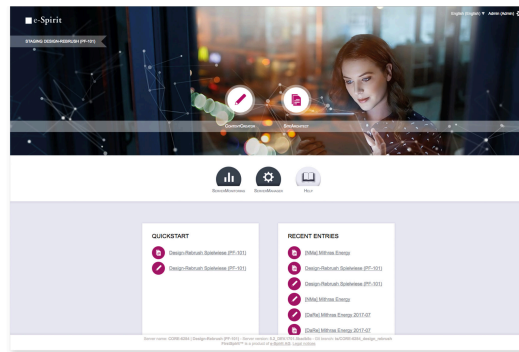
Homepage
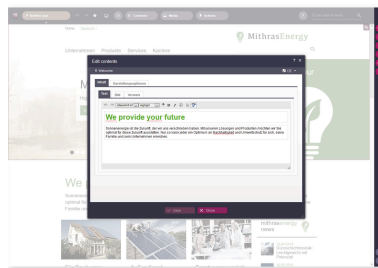
ContentCreator
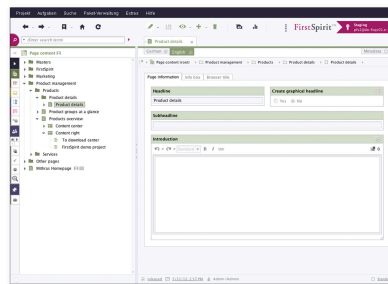
SiteArchitect

With the new FirstSpirit upgrade, editors, developers and administrators see "their" FirstSpirit revitalised. The most striking change: the new FirstSpirit start screen. The tiles for selecting clients UIs are replaced by new icons - editorial and administrative tools are visually more distinguished from each other. Large visual elements and micro-animations shape the first impression.

SiteArchitect and ContentCreator have also undergone changes to the look and feel: A unified, modernized color palette with contrasting, fresh tones gives the FirstSpirit tools a harmonized design. The color spectrum shifts from classic software gray with low-saturation colors to a modern blue-gray with glowing accents. Buttons and icons are rounder in many places, and the toolbar is even more clearly arranged.

The design update does not involve any functional changes for editors or developers. All functions are still available in familiar places. Also, it drives no additional effort for developers and operations.

As of the current FirstSpirit version, the design overhaul is not yet completed and will be pursued over future releases.

Documentation will be revised incrementally. Thus, screenshots in documentation may not yet reflect the current design.

Note about customer-specific modules and plugins: controls which are added to the graphical user interfaces of FirstSpirit SiteArchitect and/or ContentCreator by way of customer-specific plugin implementations and modules should be adjusted as needed to fit the new design.

46   Support for Berkeley DB 3 and 5 has been discontinued, server starts only after migration 2018-11

FirstSpirit uses Oracle Berkeley DB as a repository for storing content data. Until now, versions 3 and 5 have been in use and running reliably and in a stable manner for many years. However, in order to benefit from performance advantages and to remain at the forefront of technical development as well as for security reasons, the internal Berkeley DB is being updated to version 7.

As announced with FirstSpirit 5.2R21 (May 2018), support for Berkeley DB 3 and 5 has been discontinued as of the current release. Berkeley DB 3 and 5 are no longer shipped as of the current release (modules `fs-berkeleydb3.fsm` and `fs-berkeleydb5.fsm`).

> **!** If the FirstSpirit server was initially installed with a version **lower than FirstSpirit 2018-06**, the **server will no longer start when running the current release** if a migration to Berkeley DB 7 has not yet been performed.

FirstSpirit servers which were initially installed with FirstSpirit 2018-06 or higher use Berkeley DB version 7 by default.

In order to enable the server to start again,

- **A:** a migration of the Berkeley DB to version 7 must be performed (recommended), or

- **B:** a downgrade of the server must be performed.

A (recommended): For the migration of the Berkeley DB of a FirstSpirit server to version 7 with FirstSpirit 2018-11 or higher, the command-line utility "BerkeleyUtil" must be used. In order to use this tool, the FirstSpirit server must be offline. Usage is described in *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Repository", section "Conversion to Berkeley DB 7".

B: After a downgrade to an older FirstSpirit release (< 2018-11), the FirstSpirit server can also again be started and operated, even if a migration to Berkeley DB 7 has not yet been performed.

In this state, a migration may be performed as described in *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Repository", section "Conversion to Berkeley DB 7". After successful migration to Berkeley DB version 7, the FirstSpirit server can be upgraded to FirstSpirit 2018-11.

If migration to Berkeley DB 7 was performed successfully and if the server runs with FirstSpirit 2018-11 without issues, the module files which were required for BDB versions 3 and 5 should be deleted from the server (files `fs-berkeleydb3.fsm` and `fs-berkeleydb5.fsm` within `\data\modules\`) in order to avoid potential conflicts between the libraries in use. To do so, use the button "Uninstall" in FirstSpirit ServerManager, "Server properties / modules":
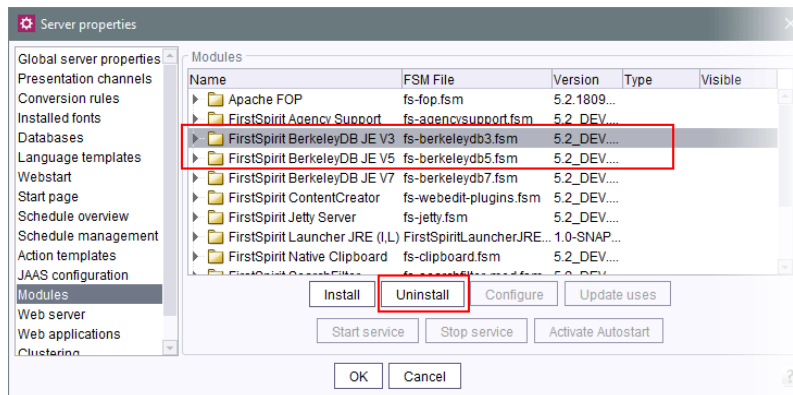
Notes about downgrade capability:

After a conversion to Berkeley DB version 7, a downgrade of FirstSpirit to versions lower than version 5.2R18 (released February 2018) will no longer be possible. A downgrade to FirstSpirit versions greater than or equal to 5.2R18, however, will be possible.

If the modules required for BDB versions 3 and 5 were uninstalled with FirstSpirit 2018-11, these will be reinstalled automatically during a downgrade to a version lower than FirstSpirit 2018-11.

47 Support for Debian GNU/Linux 9 [5.2R21]

As of the current FirstSpirit version, Debian GNU/Linux version 9 can officially be used for FirstSpirit Servers.
However, version 7 is only supported "passively".

For more information, see the *FirstSpirit Technical Data Sheet*.

48   System requirements   5.2R7

FirstSpirit aims to support the very latest browsers, databases, and operating systems. The following products and versions have been released for use with the current version of FirstSpirit.

Operating systems:

Reference operating system for the clients is now

- Microsoft Windows 10

Furthermore, in addition to Ubuntu 12.04 LTS, the latest FirstSpirit version also passively supports

- Ubuntu 16.04 LTS

as an operating system for both the FirstSpirit Server and the FirstSpirit Clients SiteArchitect and ServerManager.

For more information, see the *FirstSpirit Technical Data Sheet*.

49   Tomcat support   2018-06

Tomcat 9 is released for use with FirstSpirit from the latest version of FirstSpirit.
Version 8.5 is "actively" supported. We recommend using Apache Tomcat version 8.5.14 or higher. This is because errors in earlier versions of Apache Tomcat could impair the operation of FirstSpirit.

Versions 7 and 8.0 are no longer being maintained. The manufacturer will cease support for version 8.0 on June 30, 2018.

For more information, see the *FirstSpirit Technical Data Sheet* and http://tomcat.apache.org/whichversion.html.

50   Migration of the FirstSpirit modules to "Isolated mode"   2019-01

The main goal of the "isolated mode" of the FirstSpirit server is to give developers of modules greater freedom in selecting the libraries they use. Especially the potential conflicts with libraries supplied by the FirstSpirit core should be hereby minimised.

For further information see FirstSpirit Developer's Manual for Components, chapter "Isolated mode".

As part of this reorientation and starting with the current release, the FirstSpirit modules delivered by e-Spirit are being converted into the "Isolated mode". The display name of the modules (tag `displayname`) was supplemented by the addition *(I, L)*. This indicates that the respective module can be operated both on FirstSpirit servers that are already running in "Isolated mode" as well as on servers that are still running in "Legacy mode". The unique identifier / name of the modules (tag `name`) remains unaltered.
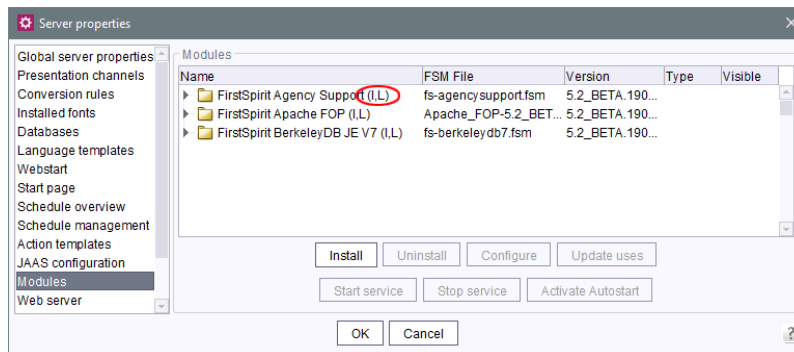
View in the FirstSpirit ServerManager

The functionality of the modules will not be affected by this change.
As always, it is recommended to update all modules when updating the FirstSpirit server.

51   Support for the distributed development of FirstSpirit projects (External Synchronization) 5.2R14

FirstSpirit projects are generally developed in a team. For distributed project development involving several team members, each team member works in their own local FirstSpirit development environment. The development processes operate at several workplaces (decentrally), at different times (asynchronously), and often at different development strands (nonlinearly). To support these projects successfully, adequate tools (such as version control systems, integrated development environments, etc.) need to be used.
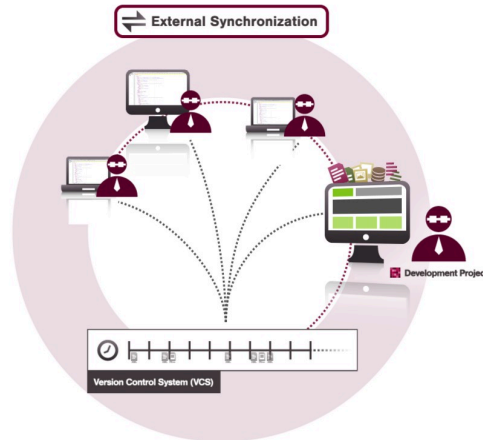
FirstSpirit External Synchronization supports these concepts by providing FirstSpirit objects in a format which allows developers to export templates (and other project content):

- from a FirstSpirit project into a file system structure with a folder hierarchy and

- to import modified content from the file system structure back into a FirstSpirit project.

This export/import functionality makes it possible to:

- edit FirstSpirit objects externally,

- version FirstSpirit objects via an external version control system.

Entry points for External Synchronization are the following interfaces:

- ImportOperation

- ExportOperation

(Package: `de.espirit.firstspirit.store.access.nexport.operations`)

We recommend performing all export and import actions using **FSDevTools**. This tool uses pre-defined commands to automatically import and export data between the FirstSpirit project and the file system. The interfaces therefore do not have to be implemented individually.

Source code and documentation for the compilation, use, and functional expansion of the "FSDevTools" command line tool are published and available to download at:

- https://github.com/e-Spirit/FSDevTools

Technical requirements, configuration and concrete examples are described in the documentation *Introduction* (→*Documentation "External Synchronization"*) (.../help/odfs/edocs/sync/index.html).

Compatibility with other FirstSpirit versions: Functionality for being able to export templates and other content from a FirstSpirit project into a file system structure with folder hierarchy and thus for being able editing these externally has been already introduced with FirstSpirit version 5.1.

This functionality has been extensively enhanced and revised with the current release. For example, the export format has been changed and API methods added.

Exports which were created in earlier FirstSpirit versions using the "External Synchronization" function can still be used. Relevant changes in software behavior are described in detail in Chapter 4.

> **!** After a FirstSpirit version which still uses the old export format is upgraded or updated, the project in question must be fully exported so that the format changes take effect.
> The method `setDeleteObsoleteFiles` must be set to `true`. (This is the default setting when using FSDevTools.)

> **!** Downgrading FirstSpirit versions which use the new export format (to versions which use the old export format) is not supported. In such cases, please contact e-Spirit directly.

52 Support of Java 11 2018-11

As previously described in the release notes for FirstSpirit 2018-10, Java 11 is supported by FirstSpirit, but this support will continue to have the status "EAP".

Since the release of 2018-10, intensive internal testing was performed on the Java-based clients. These tests already identified the following limitations in FirstSpirit SiteArchitect:

- Display issue with the caret in CMS_INPUT_DOM and CMS_INPUT_DOMTABLE in conjunction with certain fonts:
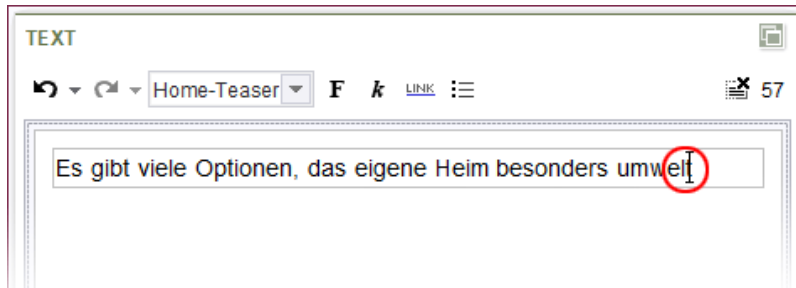
Due to a Java 11 error in size calculation, the caret will in some cases not be displayed exactly behind a character. In many cases, the issue can be resolved by defining a constant size in the format template (in the format template, tab "Properties", field "Size").

- Display issue regarding transparent windows, e.g. dialog "Help / About FirstSpirit":
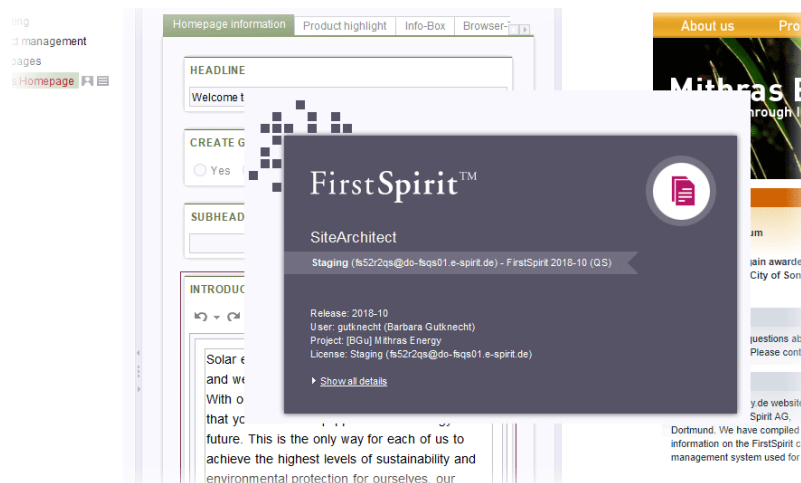
(With Java < 11, a transparent border is displayed around the dialog.)

These display issues originate in Java 11. Currently, research is being carried out to determine if and how these issues can be resolved by e-Spirit. The publication of related bugfixes is planned for one of the next FirstSpirit releases.

In order to be able to use Java 11 for FirstSpirit SiteArchitect and ServerManager, the FirstSpirit Launcher must be used. In order to simplify participation in the "EAP" program for Java 11, e-Spirit has developed a special module for the Launcher, named "FirstSpirit Launcher JRE". Interested parties may obtain this module via Technical Support (https://help.e-spirit.com).

53   Use of Oracle Java 9 and 10   `5.2R20`

As of FirstSpirit version 5.2R20, Oracle Java 9 is officially approved for use with FirstSpirit. All problems in the use of FirstSpirit with Java 9 which could thus far be identified could be successfully corrected by e-Spirit.

However, on a technical level, the difference between Java 8 and Java 9+ is quite large (e.g. related to memory management) such that an update of existing FirstSpirit installations to Java 9 presents several challenges, e.g. related to RAM requirements and GC parameters. Thus, e-Spirit emphatically recommends that a Java update from Java 8 to 9+ is initially done on test or QA systems in order to obtain experience with any given concrete usage scenario. Problems and errors which arise from the use of Java 9+ should in all cases be forwarded to e-Spirit in a timely manner.

For all production systems, e-Spirit recommends use of Oracle Java 8 for the time being. Here, it is important to note, however, that Oracle plans to cease support for Java 8 in early 2019 such that planning/ evaluation of a migration to Java 9+ will become necessary in the foreseeable future in any case.

The first released version of Oracle Java 10 has meanwhile been published (20-Mar-2018). e-Spirit has already tested this version and has made the necessary adjustments in FirstSpirit in FirstSpirit version 5.2R20. However, there is still little practical experience concerning the operation, and the internal tests and quality assurance activities are still ongoing. Nevertheless, Java 10 receives the status "EAP" (early access program) already with FirstSpirit version 5.2R20. This means, that FirstSpirit (server as well as clients) can be operated with Java 10, but should first be used only with testing and QA environments, and not at all in productive environments. The restrictions known relating to the use of Java 9 apply also to Java 10.

FirstSpirit support for Oracle Java 11 is planned from the third quarter of 2018 onwards. This version is the next LTS version from Oracle and publication is scheduled for September 2018. Currently, FirstSpirit is not yet functional when used with Oracle Java 11.

Java 8 will be supported by FirstSpirit up to the end of Oracle public support (at least January 2019).

Restrictions
The following technical restrictions are currently known relating to the use of Oracle Java 9 (and higher where applicable) that cannot be bypassed by programming:

- Oracle does not offer Java 9 and higher in more than one 32 bit variant, i.e. when using Oracle Java 9 and higher, FirstSpirit can now only be run on 64 bit platforms or with 64 bit applications.

- Due to advanced security checks in Java 9 and higher, delays arise, in particular on launching on the client side and when first running functionalities that have been loaded afterwards.

- The Oracle Java Runtime Environment (JRE) that is required to launch the FirstSpirit SiteArchitect, is potentially not compatible between versions 8 and 9+. In Windows, the FirstSpirit Launcher permits a simpler change back to Java 8.

- Some functions in FirstSpirit are based on third-party software. Not all vendors of third-party software have converted it in order to ensure compatibility with Java 9 and higher. Consequently, functions that are based on third-party software of this kind will not be available if FirstSpirit is being operated with Oracle Java 9+. Operating system-specific third party applications in the AppCenter of the FirstSpirit SiteArchitect will no longer be supported from Oracle Java 9 (exception: the browser integration).

Installation / Upgrade from Java 8

Using **existing FirstSpirit installations** with Java 9 and higher will require slight changes to configuration files in the file system.

1. First, perform an inplace upgrade of the desired FirstSpirit server (for non-Windows systems see *FirstSpirit Installation instruction*, Chapter "Via a tar archive", for Windows systems see Chapter "Updating via the installation program"). In this way, the start script will be updated automatically (`fs5` for Linux, `fs5.cmd` for Windows).

2. Replace the file `fs-wrapper.conf` (or for servers running in "Isolated mode" the file `fs-wrapper.isolated.conf`) in the FirstSpirit subdirectory *~\conf* by the content of the file `fs-wrapper.conf.default.txt` (or by the content of the file `fs-wrapper.isolated.conf.default.txt`) in the subdirectory *~\conf\conf-all* and adopt individual changes which you have made in the file `fs-wrapper.conf`.

If you would like to use FirstSpirit with Java 9 or higher as Windows service, please change the line

```
#include.required ../conf/fs-wrapper-j1.include.conf
```

in the file `fs-wrapper.conf` or `fs-wrapper.isolated.conf` to

```
#include.required ../conf/fs-wrapper-j2.include.conf
```

New installations do not require a change of the above mentioned files.

Installation under Microsoft Windows

For installation under Windows, please install first a FirstSpirit server with Java 8 as described in the *FirstSpirit Installation instruction*, Chapter "Installation under Windows". Under Oracle Java 9 and higher, FirstSpirit can not be installed using the Windows installation program `firstspirit-setup-<version number>.exe` or `firstspirit-isolated-setup-<version number>.exe`.

Then the path to the desired Java version (the parameter `wrapper.java.command`) must be entered in the file `fs-wrapper.conf` or `fs-wrapper.isolated.conf` and other parameters should be adjusted in order to meet the relevant requirements in each case.

In addition, in the file `fs-wrapper.conf` or `fs-wrapper.isolated.conf`, the line

```
#include.required ../conf/fs-wrapper-j1.include.conf
```

must be changed to

```
#include.required ../conf/fs-wrapper-j2.include.conf
```

Notes about using Java 9 and higher

▪ Under Java 9 and higher, it is again possible to use the third-party component integrated in FirstSpirit, "Beanshell", and to copy text from the integrated preview in the FirstSpirit SiteArchitect using the keyboard shortcut Ctrl + C as of FirstSpirit version 5.2R20, without the need to set the parameter `--illegal-access=warn` within the Java Control Panel. If other restrictions or problems should arise with using Java 9 and higher, which are not mentioned in the section "Restrictions" below, or in the following, please contact the Technical Support.

▪ The parameters of the wrapper files `fs-wrapper-j#.include.conf` cannot be edited like the default wrapper file `fs-wrapper.conf` via the FirstSpirit ServerMonitoring. However, the file can be edited in the file system.

- The Jetty web server integrated into FirstSpirit will not run under Oracle Java 9 or higher. The `fs-jetty.fsm` module (EAP) can be used instead.

- The "Keep temporary files on my computer" option for Java Web Start must be selected under Oracle Java 9+ so that FirstSpirit SiteArchitect and FirstSpirit ServerManager can be launched. Under Oracle Java 8 this could also be deselected. Therefore, we recommend checking this setting when changing to Oracle Java 9 or higher (tab "Web settings / Temporary Files Settings"):
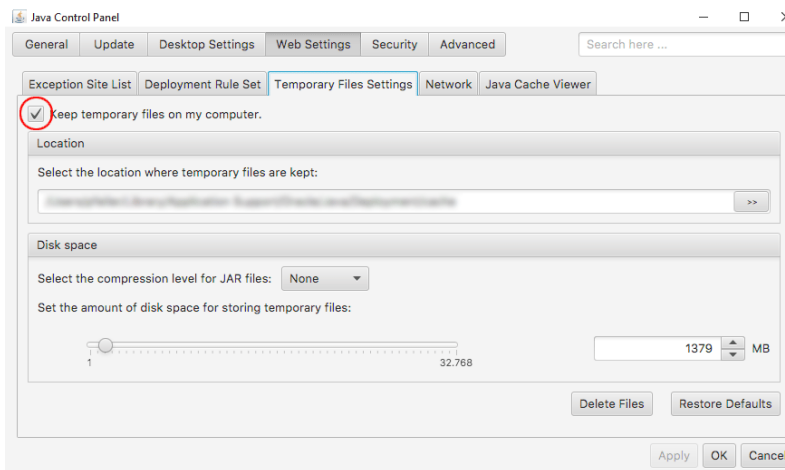
Notes about downgrading

Oracle Java 9 and higher differs in terms of their encryption options or their default encryption from Oracle Java 8. Switching a JDK is then problematic (e.g., from Oracle Java 9 to Oracle Java 8) if the repository was encrypted with a method that is not supported by the target JDK. Once the JDK has been switched, the project will then not launch. However, this can be resolved by changing the `java.security` under "[JRE_home]/lib/security/".

For more information, please see http://www.oracle.com/technetwork/java/javase/8u151-relnotes-3850493.html.

54   Advance notice: Rebrush for FirstSpirit components 5.2R16

The graphics of the FirstSpirit start page, FirstSpirit ContentCreator, and FirstSpirit SiteArchitect are currently being revised. They will feature a more modern design, but their proven user prompting and guidance will be preserved. Release of the new design is planned for FirstSpirit version 5.2R17.

55 Migrating from the InternalJetty to a web server for productive use

2018-09

The open source product "Eclipse Jetty" integrated in FirstSpirit provides a web server and a JSP/servlet engine which run as part of the FirstSpirit server in the same VM. The use of this integrated web server is intended for testing purposes only, so that customers can use FirstSpirit directly with web server functionality without first having to install and connect an external web server. For more complex configuration requirements (e.g. memory size adjustments, timeouts, number of threads per deployed application...) the use of an external web server, and especially **Apache Tomcat**, is recommended.

Since FirstSpirit 2018-08, the functionality of the integrated Jetty "InternalJetty" is no longer supported. With a subsequent FirstSpirit release it will no longer be possible to use the "InternalJetty." Features based on the "InternalJetty" (preview, etc.) will then no longer be executable. Therefore, for productive systems a prompt change to an external web server (Apache Tomcat) is required.

A web server of the type "Jetty Web Server" can be used as fallback and/or development environment. This web server is officially released with FirstSpirit 2018-09. As of the current release, new installations are using the "Jetty Web Server" by default (see also Chapter "Web server configuration: new FirstSpirit installations use the web server 'FirstSpirit Jetty Server'"). However, since the "Jetty Web Server" is also an integrated Web/Application server, its recommended use is for development purposes or as a fallback and only basic configuration options are available.

FirstSpirit 2018-08 offers new and productively usable web server configuration options to enable customers to easily switch to more sustainable solutions. With the current release an additional wizard was implemented with which web applications can be migrated easily and GUI-supported from one web server to another ("FirstSpirit ServerManager / Server properties / Web server", "Migrate" button, see also *FirstSpirit Manual for Administrators*).
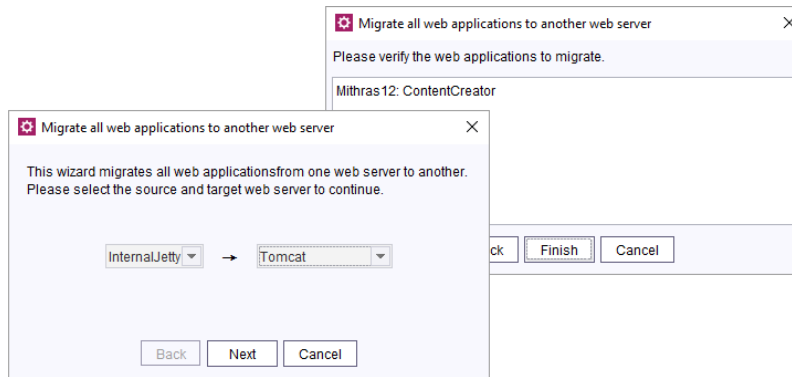
Migration wizard

Recommended default configuration for production servers

e-Spirit recommends using an Apache Tomcat as FirstSpirit's web server configuration, as described in "Tomcat servlet engine on a dedicated host" in the *FirstSpirit Manual for Administrators*.

The web applications "FirstSpirit start page" and "ServerMonitoring" should be installed on an "Aggregating Web Server", in which this Tomcat web server and a "Jetty Web Server" are combined. Here the Tomcat web server should be defined as the default web server:
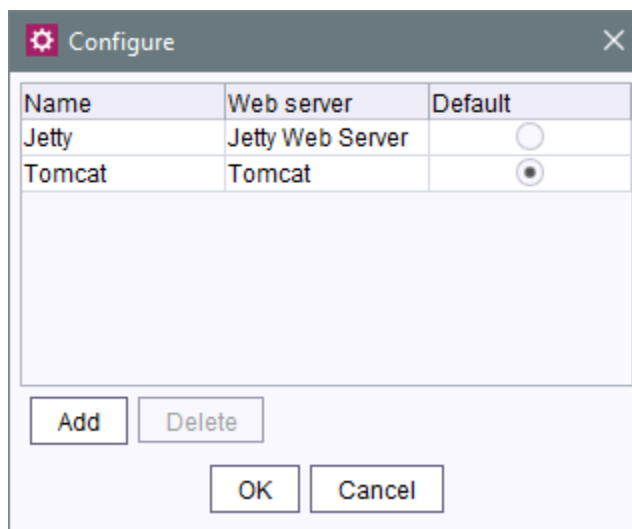
All other web applications should be installed on the Tomcat web server. The migration of the web application is done (if necessary) using the new migration wizard. The target web server is the Tomcat web server.

This configuration ensures that the web applications are delivered stable via Tomcat. Irrespective of the Tomcat web server, the start page and server monitoring can be accessed at any time via the "Jetty web server", so that the FirstSpirit server remains configurable even in the event of problems with the Tomcat web server (or if it is scheduled to shut down).

For further information on creating and configuring the individual web server types and migrating web applications, see *FirstSpirit Manual for Administrators,* "FirstSpirit ServerManager / Server properties / Web server".

56   Administration

56.1   "Attach log files:" in schedules where e-mail is sent   5.2R21

As as result of a code change in Oracle Java 9 and higher, the FirstSpirit function "Attach log files" is no longer supported in the "Send e-mail" schedule, e.g.,

("FirstSpirit ServerManager / Server properties / Schedule management / Add or edit / Actions / Add or edit / Send e-mail")

Error message:

```
java.util.concurrent.ExecutionException: java.lang.NoClassDefFoundError:
  javax/activation/FileTypeMap
```

This incompatibility has been rectified in the most recent version of FirstSpirit.

For new installations with FirstSpirit version 5.2R21 and later that use Oracle Java 9 or higher, no modifications are necessary.

For existing FirstSpirit installations that use Oracle Java 9 or higher, the following parameters must be defined in the wrapper file containing the start parameters for Java 9 and higher (file `fs-wrapper-j2.include.conf` by default) in the `<FirstSpiritROOT>/conf` subdirectory:

```
wrapper.java.additional.26=--add-modules=java.activation
```

Installations that use Oracle Java 8 or 7 are not affected by this error.

Note: Oracle Java 10 has not yet been officially released for use with FirstSpirit; its current status is "EAP" (early access program).

56.2   64- and 32-bit support for FirstSpirit servers 2018-12

Since FirstSpirit 5.0, operation of a FirstSpirit server is only supported on 64-bit variants of operating systems. Use of a FirstSpirit server in a 32-bit environment or in 32-bit mode is not supported.

As of FirstSpirit 2018-12, the Java Service Wrapper files which enable operation of a FirstSpirit server in 32-bit mode will no longer be provided. Existing FirstSpirit installations will thus no longer receive updates for these files when the Java Service Wrapper is updated.

In order to avoid mixed operation of two Java Service Wrapper versions, it is urgently recommended to manually delete the 32-bit files from the file system under FirstSpirit 2018-12.

The files in question are listed below (`~FS` = installation directory of the FirstSpirit server):

- Directory `~FS/bin`
  - `wrapper-aix-ppc-32`

  - `wrapper-linux-x86-32`

  - `wrapper-macosx-universal-32`

  - `wrapper-solaris-sparc-32`

  - `wrapper-solaris-x86-32`

  - `wrapper-windows-x86-32.exe`

- Directory `~FS/server/lib` or `~FS/server/lib-isolated`
  - `libwrapper-aix-ppc-32.so`

  - `libwrapper-linux-x86-32.so`

  - `libwrapper-macosx-universal-32.jnilib`

  - `libwrapper-solaris-sparc-32.so`

  - `libwrapper-solaris-x86-32.so`

  - `wrapper-windows-x86-32.dll`

For FirstSpirit server installations which still use 32-bit, it is recommended to migrate to 64-bit in a timely manner.

56.3   Action "Execute generation": Selection of start nodes for partial generation   2018-09

The action "Execute generation" ("FirstSpirit ServerManager / Project properties / Schedule management / Add/edit schedule entry / Actions / Execute generation") can be used to perform a full or partial generation of a project. The panel "Start points" is used to select start nodes which should be included in partial generation.

Until now, selection of start nodes only supported released nodes. Nodes which have never been released were not available for selection. As of the current version of FirstSpirit, selection considers the current state of the project, i.e. all nodes currently present in the project are available for selection, including nodes which have never been released.

Nodes that have never been released and can thus lead to problems in generation will now be specially visualized in the dialog ("Start nodes have been specified whose release versions are not accessible!"):
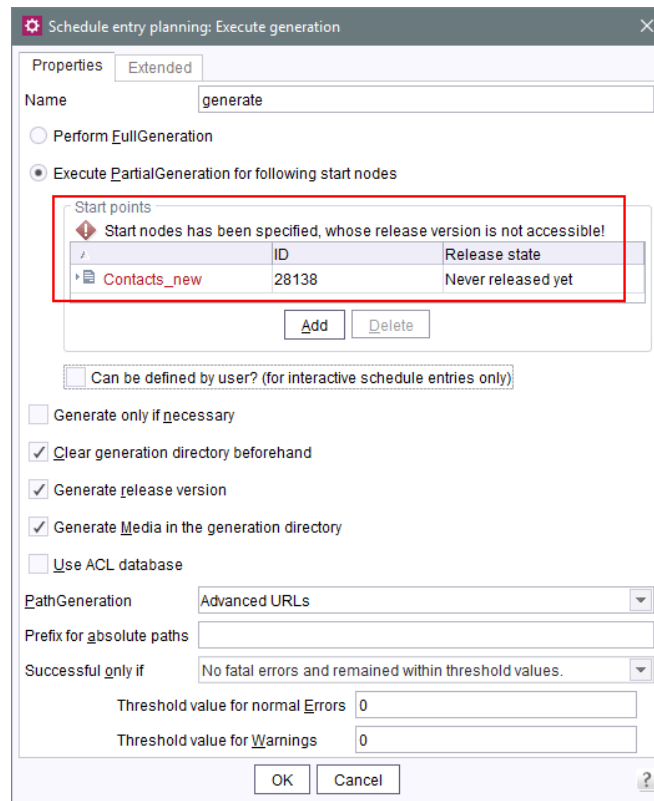
For further information, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit ServerManager / Schedule entry planning / Project-based actions / Execute generation".

56.4 End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended 2018-11

As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions (FirstSpirit 2018-07 and lower), the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10.

As of the current release, only the new Launcher version is supported. It can be downloaded and distributed via the start page of a FirstSpirit server running version 2018-08 or higher.

Migrating to the new Launcher version

If a version of the FirstSpirit Launcher before FirstSpirit 2018-08 is already installed on the local workstation, it must be installed anew because an automatic update will not take place. After successful installation of the new Launcher version, it will be used automatically. The old Launcher will no longer be used and can be uninstalled (Windows functionality). Directories and files which were created by the old Launcher on the associated FirstSpirit server as well as on the local workstations can be deleted manually:

- **FirstSpirit server**
    - within the directory `[FirstSpiritROOT]\web\fs5root\clientjar,` files
        - `FSLauncherSetup.exe`
        - `FSLauncherSetup.msi`

- **Workstations**
    - directory `C:\Users\{username}\.firstspirit\launcher`
    - directory `C:\Users\{username}\AppData\Local\FirstSpirit Launcher`

Compatibility and upgrade/downgrade capability

Until now, it was possible to use an "old" Launcher version (FirstSpirit 2018-07 or lower) with a FirstSpirit server running FirstSpirit 2018-08 or higher. Likewise, the "new" Launcher version (FirstSpirit 2018-08 and higher) could be used with a FirstSpirit server running FirstSpirit 2018-07 or lower. With the official end of support for the "old" Launcher, prolonged compatibility cannot be ensured; a timely migration to the new Launcher version is recommended.

For further information, see

- *FirstSpirit Release Notes* for FirstSpirit 2018-08

- *FirstSpirit Installation Instructions*, chapter "FirstSpirit Launcher"

■ *FirstSpirit Manual for Administrators*, page "FirstSpirit start page / Areas of the start page / FirstSpirit Launcher"

56.5 Log in via the HTTP request header ("RequestHeaderLoginModule")

5.2R2

FirstSpirit uses the Java standard JAAS ("Java Authentication and Authorization Service") to authenticate its users. Various JAAS modules are already integrated in FirstSpirit and provide various methods of user authentication. In FirstSpirit version 5.2R2, the "RequestHeaderLoginModule" has been added to the FirstSpirit standard (module name: `de.espirit.firstspirit.server.authentication.RequestHeaderLoginModule`). This module is used in conjunction with a web access management system, i.e., a reverse proxy with a simultaneous authentication function. The reverse proxy automatically authenticates the user who calls up the FirstSpirit start page using a web browser. In each HTTP request following successful authentication, the reverse proxy transfers the user name of the authenticated user between the reverse proxy and the FirstSpirit WebApp server. It does so by means of an entry in the HTTP request header. To ensure the authenticity of the transferred user name in the HTTP request header, the "RequestHeaderLoginModule" checks either the sending proxy's IP address or its HTTP client certificate. FirstSpirit then accepts the transferred user name as a FirstSpirit user name. This means there is no need for the user to perform additional authentication on FirstSpirit.

For more information, see *FirstSpirit Manual for Administrators*, chapter "Logging in via the HTTP request header".

56.6 Anonymization of personal data of deleted users 2018-07

The General Data Protection Regulation (GDPR) is an EU regulation that protects the fundamental right of European citizens to privacy and regulates the handling of personal data. Some functions in FirstSpirit that enable collaborative work, versioning, automatic notifications, etc. require personal system data. These are usually contact details of editors such as name, e-mail address, IP address, etc.
With the current release, personal data of deleted users (e.g. via FirstSpirit ServerManager / User / Delete) can be made anonymous in FirstSpirit.
This anonymization can be activated for the relevant FirstSpirit server in the configuration file `fs-server.conf` using the option

```
privacy.anonymizeDeletedUsersData=true
```

(default value is *false*).

If the parameter `privacy.anonymizeDeletedUsersData=true` is set in the file `fs-server.conf`, data from deleted users can no longer be obtained. In the revision history and in other locations where the user name would be displayed, the phrase *{DELETED USER}* and, if applicable, the ID of the deleted user is displayed instead.

For example

For further information see

- *FirstSpirit Manual for Administrators*, page "Notes about GDPR"

- *FirstSpirit Manual for Administrators*, page "FirstSpirit ServerManager / Menu bar items / User"

- Blogpost The Ultimate Resource for GDPR Readiness

56.7   Modifications in the Java environment (wrapper configuration)

2018-09

FirstSpirit is now released for use with Oracle Java 10. However, according to the latest product release information from Oracle, manufacturer support for Oracle Java 10 will be discontinued in September 2018. Oracle Java 11 (18.9 LTS) will then be officially released by Oracle.

A number of functions will no longer be supported in Java 11 (e.g., the "java.activation" module); their discontinuation ("deprecation") has already been announced. To prepare for these changes, the

```
--add-modules=java.activation
```

option has been removed from the `fs-wrapper-j2.include.conf` file.
Furthermore, erroneous behavior could arise while sending e-mails with attachments when using this option.

For new installations using FirstSpirit 2018-09 and later, no modifications are required, for existing FirstSpirit installations, the entry `--add-modules=java.activation` must be removed manually from the `fs-wrapper-j2.include.conf` file in the `<FirstSpiritROOT>/conf` subdirectory.

56.8   Displaying the wrapper version in ServerMonitoring and log 2019-01

The "Java Service Wrapper" is used to control the server in FirstSpirit and is therefore an essential component of a FirstSpirit Server.

The relevant files are updated at irregular intervals by e-Spirit. There can be several reasons for updating: Correcting errors in the wrapper, security updates, supporting new Java versions, supporting operating system changes, etc. That is why it is a good idea to update the "Java Service Wrapper" promptly in existing FirstSpirit installations.

With the current release, the version of the wrapper used can be determined under "Overview / State" in FirstSpirit ServerMonitoring:

If the wrapper version used does not correspond to the version recommended by the FirstSpirit Server, this is indicated by the red font and the term "outdated":

State

Basic information (system)	
Server hostname:	betelgeuse
Server version:	5.2.190106.77933
Server directory:	D:\FirstSpirit\2018-09\FirstSpirit5
IP address:	172.17.16.35
Ports:	9000/1099 (HTTP/SOCKET)
Application server:	internal
Licence:	e-spirit
Licence expiration:	01.07.2019
Server uptime	3m 0s 394ms
Java version:	1.8.0_121
Wrapper version:	3.5.35 (Java Service Wrapper outdated)
Java directory:	C:\Program Files (x86)\Java\jdk1.8.0_121\jre
Number of projects:	1
Number of Users:	2

This is recorded in the `fs-wrapper.log` file as follows:

```
INFO | jvm 1 | 2019/01/04 09:29:28 | WARN Fri Jan 04 09:29:28 CET 2019 (de.espirit.
  firstspirit.server.ServerManagerImpl) An outdated Java Service Wrapper is being
  used (3.5.26)! Please update to version 3.5.36
```

In this case, the wrapper must be updated according to *FirstSpirit Installation Instructions*, chapters

- Updating via a tar archive (for Unix)

- Updating via the installation program (for Microsoft Windows).

Alternatively, it can be updated using the tar gzip update archive (`fs-update-5.2.*.tar.gz` file). However, since this update function is still in the EAP phase, we do not yet recommend using it in live environments (see also the release notes for FirstSpirit 2018-11).
Updating a FirstSpirit Server by exchanging the `fs-server.jar` file does **not** update the wrapper used.

56.9 Apache Tomcat / Java Servlet Specification 3.0: Disabling Pluggability features 5.2R7

"Pluggability" features were introduced with version 3.0 of the Java Servlet Specification. These enable the `web.xml` modularization or the configuration of components via Java annotations. However, the latter function requires that all classes must be scanned for annotations when the web application is deployed (and implicitly each time the application server is started). As this process can take a long time, FirstSpirit can disable pluggability features globally or for individual web applications starting with the current FirstSpirit version.

Global configuration is carried out in the server configuration via the `WEBAPP_ENABLE_PLUGGABILITY_FEATURES_DEFAULT` parameter within the file `fs-server.conf`. Possible values are:

- `true`: Pluggability features are activated, Java classes are scanned for annotations during deployment. This is the default value.

- `false`: Pluggability features are deactivated, Java classes are not scanned.

Configuration for individual web applications is carried out via the "Pluggability"selection field, either for the global web applications (FirstSpirit ServerManager, "Server properties / Web applications")
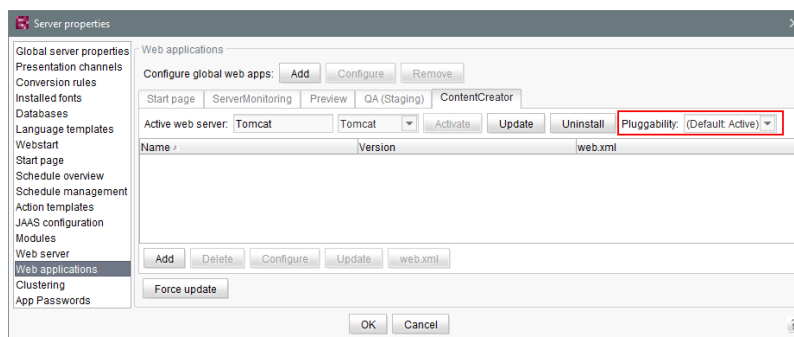
or for the web components of a project (FirstSpirit ServerManager, "Project properties / Web components")
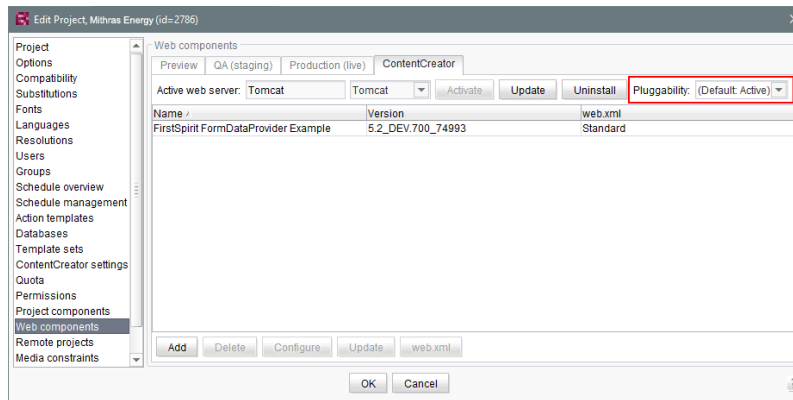
For more information please see *FirstSpirit Manual for Administrators*,

- Chapter "Area: Web Applications"

- Chapter "Configuring web applications"

- Chapter "Web components"

and the official page about the Java Servlet 3.0 Specification.

> **!** If the pluggability features are deactivated manually within the `web.xml`, for example by specifying an `<absolute-ordering>` element, and if the pluggability features have been **deactivated** by means of the new functionality which is described here, this can lead to conflicts. In this case, please remove the manual configuration (from the `web.xml`) or change the pluggability setting of the respective web application/s to "active" using the above described possibilities.

56.10 Workflows: Variables for language-dependent URLs in e-mails

2018-10

In e-mails that are sent by workflows, special variables may be included that will be replaced by the system automatically and in a context-sensitive fashion. This allows, for example, inclusion of links in the e-mail that point at the preview of the page on which the workflow is active.

In multi-language projects, links that are inserted in the e-mail in lieu of the following variables will point at the preview in the master language:

```
%FIRSTspiritURL%
%FIRSTspiritSOCKETURL%
%WEBeditURL%
%PAGESTORE_PREVIEW_URL%
%SITESTORE_PREVIEW_URL%
```

As of the current release, adding an underscore (_) and the abbreviation of the desired language will cause creation of language-dependent links. E.g. for the language "DE":

```
%FIRSTspiritURL_DE%
%FIRSTspiritSOCKETURL_DE%
%WEBeditURL_DE%
%PAGESTORE_PREVIEW_URL_DE%
%SITESTORE_PREVIEW_URL_DE%
```

For further information, see *FirstSpirit Online Documentation*, page "Templates (basics) / Composition of templates / Workflows / State diagram tab / Properties of an activity".

56.11 Archiving: Tagged revisions are now partly taken into account 5.2R13

Some FirstSpirit actions automatically generate tags for revisions (e.g., generation, content transport). Such tags can also be generated via API (`createTag` method in the `Project` interface, `de.espirit.firstspirit.access.project` package, FirstSpirit Access API).
Revisions with these tags have previously not been taken into account during archiving. In the current FirstSpirit version, revisions and tags whose tag name ends with the suffix "Task" are now archived, e.g., revisions and tags created automatically during generation or other Scheduler entries. This archived data can be deleted at a later date, in order to free up memory space and therefore increase the performance of the FirstSpirit Server.

56.12 Resolutions: Maximum width and height have been increased (18,918 pixels) 2018-07

Images can be stored in FirstSpirit in various "resolutions". These resolutions can be defined under "Resolutions" in the FirstSpirit ServerManager:
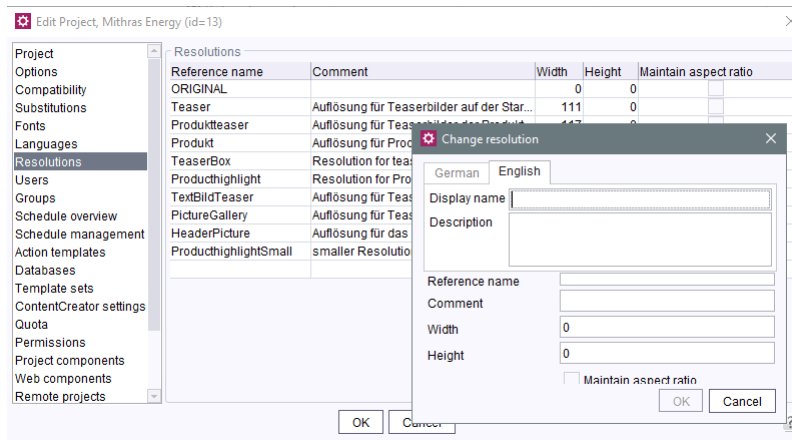
The intended width and height of the image in pixels in the corresponding resolution can be specified for each resolution. FirstSpirit can scale the original image ("original resolution") automatically to these resolutions. This provides an easy way of standardizing the sizes of images that are available in a variety of original sizes.

Previously, the maximum width and height that could be defined for resolutions was 5,000 pixels for each. The latest FirstSpirit release has increased this value to 18,918 pixels.

> **!** The higher the specified values for the width and/or height of a resolution, the more processing time will be required for the calculation/scaling of the images.

56.13 Schedule Tasks: Option "Execute even in case of error" is turned off by default 5.2R19

In FirstSpirit, schedule tasks are used to automate actions pertaining to the administration of projects (e.g. generation or publication) so that they are executed at defined, planned times. Each schedule task can consist of several actions which are executed in a specified order, e.g.:
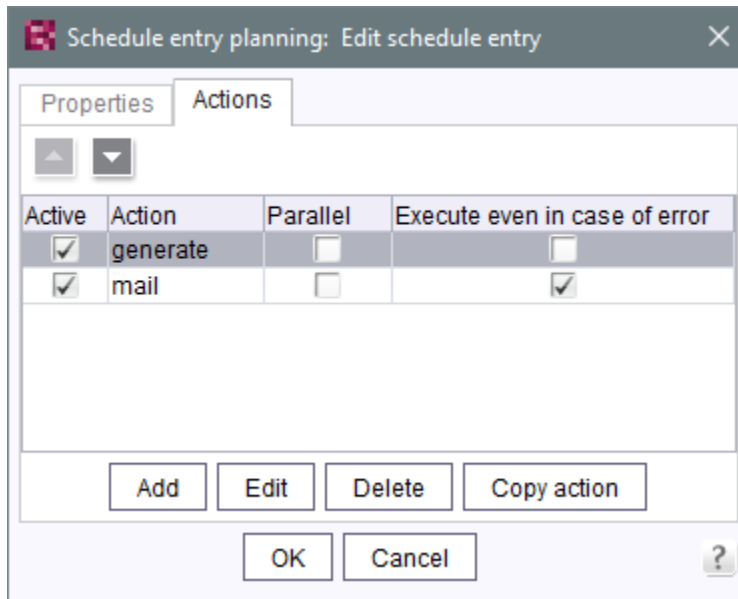
For each action, the option "Execute even in case of error" specifies if this action should be executed if its preceding execution was erroneous. For actions that are newly added to a schedule task, this option is now turned off by default; if a newly added action should be executed after the preceding execution resulted in an error, the checkbox of this option must be checked. Until now, the checkbox was checked by default for newly added actions.

For further information, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit ServerManager / Schedule entry planning", specifically the page "Add schedule entry (Actions tab)".

56.14 Schedule management, action "Execute generation": New setting - Generate release version or current state 5.2R15

In a project which uses release functionality (FirstSpirit ServerManager - project properties - page "Options" - option "Use Release function"), FirstSpirit differentiates between the released state and the current state of the project. If a project uses this option, changes in the project must be released by a user with appropriate privileges (e.g. an editor-in-chief) in order to become visible in the generated output.

Previously: An unreleased project state, e.g. a page in the Page Content store, will not be output during the next generation. Instead, the most recent released state of the page will be used.

Now: The dialog "Schedule entry planning: Execute generation" contains a new option "Generate release version" as a checkbox:

- If this option is *activated* (checkbox marked), the release version of the project will be generated (default setting).

- If this option is *deactivated* (checkbox unmarked), the current state of the project will be output during generation (even if this state contains changes which have not been released at the time of generation).

56.15 Proxy authentication via Kerberos/SPNEGO or NTLM 5.2R2

In FirstSpirit version 5.2R2 and higher, authentication based on Kerberos/SPNEGO or NTLM is supported through HTTP. This means that whenever SiteArchitect or ServerManager is connected to the FirstSpirit Server, transparent authentication based on Kerberos/SPNEGO or NTLM is attempted automatically (proxy or host). This method of authentication is only supported on Windows operating systems and on operating systems which support the Java GSS API.

To perform automatic authentication on Windows when using a proxy, the desired Kerberos SPN ("Service Principal Name") must be provided as follows:

```
-Dfs.http.kerberos.spn=HTTP/proxy.example.com
```

However, automatic Kerberos authentication against both proxy and host at the same time is not possible on Windows.

For more information, see *FirstSpirit Manual for Administrators*, chapter "Configuring connection settings".

56.16 Automatic deletion of files from local user directories 5.2R15

For various functionality of FirstSpirit SiteArchitect and FirstSpirit ServerManager, files are stored in the user home directory of the user's computer, specifically in a directory with the prefix `.firstspirit_` (e.g. `C:\Users\<USERNAME>\.firstspirit_5.2R15\...`). With every FirstSpirit update, new files are potentially added.

As of the current FirstSpirit version, during every start of SiteArchitect or ServerManager, all `.firstspirit_*` directories in which no files were changed over the last 30 days will now be deleted in order to free storage space on the workstation.

For more information see *FirstSpirit Manual for Administrators*, Chapter "FirstSpirit Server configuration / Roll-out process for native applications".

56.17 Permissions for FirstSpirit modules (Template Wizard, Template Debugger, Template Inspection) 5.2R2

The "FirstSpirit Template Wizard", "FirstSpirit Template Debugger", and "FirstSpirit Template Inspection" functions are designed to make life easier for template developers and can be implemented via FirstSpirit modules. FirstSpirit version 5.2R2 can be configured so that only certain user groups are able to access and execute this function in SiteArchitect.

The corresponding configuration settings are made with the project components included in the scope of delivery. These must be added to the required project in the FirstSpirit Server Manager (under "Project components", "FS-AgencySupport-ProjectPermissions" for the Template Wizard, "FS-TemplateDebugger-ProjectPermissions" for the Template Debugger and Template Inspection). For the Template Debugger and Template Inspection, it is only possible to specify the same permissions; the

functions are interdependent. Clicking on Configure or double-clicking on the relevant project component opens a dialog in which the required group(s) can be selected:
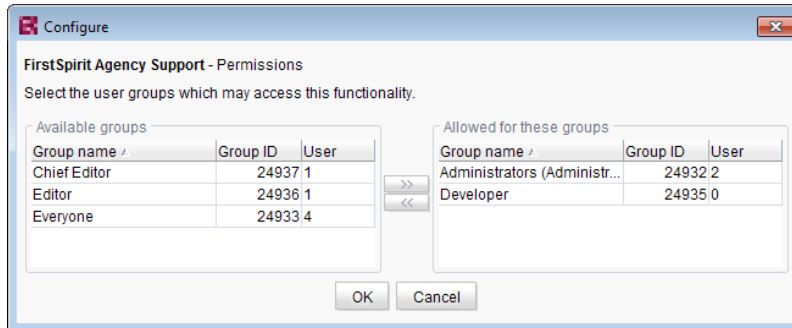
The groups that have access to the project are displayed on the left-hand side ("Available groups"). The groups that are permitted to use the corresponding function are displayed on the right-hand side ("Allowed for these groups") along with their ID and the number of users they contain. To check which users belong to a group, select "Show users" from the context menu.

The corresponding icons are displayed on the horizontal tool bar in SiteArchitect or on the "Template Inspection" context menu entry in the integrated preview for members of the "allowed group(s)". The corresponding icon is hidden for users who are not in one of the selected group. To move a group to the right-hand side or left-hand side, select it and

- click the icons

- double-click or

- select the corresponding command from the context menu ("Allow group(s)" or "Remove group(s) from allowed").

The project components are **not** assigned by default, which means even the corresponding icons and context menu entry are not displayed in SiteArchitect. To enable the functions for a particular project, the corresponding project components must be added to the project by the ServerManager and the required group(s) must be selected using "Allowed for these groups".

For more information, see

- *FirstSpirit Manual for Administrators*, chapter "Groups",

- *FirstSpirit Manual for Administrators*, chapter "Project components",

- *FirstSpirit Online Documentation*, chapter "Template development / Debugging / Where is the error? / FirstSpirit Debugger",

- *FirstSpirit Online Documentation*, chapter "Template development / Debugging / Where is the error? / Template Inspector",

- *FirstSpirit Online Documentation*, chapter "Template development / Template Wizard"

56.18 Berkeley: Default for new FirstSpirit installations is now version 7

2018-06

Oracle Berkeley DB is used as standard in FirstSpirit as a repository for saving content data – for reasons of compatibility in versions 3, 5, and 7. All three versions can be used in tandem on the same server within different projects. Upgrading to a later Berkeley version is straightforward and involves selecting it from a list.

Berkeley version 7 is now the default for new FirstSpirit installations (FirstSpirit server which are installed with FirstSpirit 2018-06 or higher).

For more information please see *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Repository".

56.19 Clustering: Optimized behavior during restart of the FirstSpirit master server 2018-12

In cluster operations, the behavior during restart of the FirstSpirit master server has been optimized: among others, the wait time before slave servers attempt to connect to the master server after a restart was increased from 60 to 90 seconds. If this time span is insufficient for the slave server to establish a connection to the master server, another duration (in seconds) can be configured via the parameter

```
cluster.slaveRestartDelay
```

in the file `fs-server.conf`, e.g.

```
cluster.slaveRestartDelay=120
```

The default value is 90.

Please note that the recommendations pertaining to configuration of slave servers (mount points) have been changed due to the optimizations done in this context. Please check if the configuration you use still conforms to the recommendations.

For further information about clustering, see *FirstSpirit Manual for Administrators*,

- "FirstSpirit ServerManager / Server properties / Clustering"

- "Updating the FirstSpirit Server / Updating in a cluster group"

56.20 The new FirstSpirit Health Center 5.2R4

The browser-based FirstSpirit ServerMonitoring is used to monitor the FirstSpirit Server. In addition to current operational parameters such as memory utilization, number of users, projects and sessions, it shows configuration parameters and error reports of the server. Beyond that, the server can be configured by means of the ServerMonitoring, too.

Whereas until now you could retrieve system information for the local FirstSpirit Server using the page "State" (below the menu entry "Overview"), the new FirstSpirit Health Center provides from FirstSpirit version 5.2R4 onward data relating to hardware utilization, as well as clearly displaying information on which FirstSpirit versions and licenses are being used by all FirstSpirit servers on a network. You can therefore see at a glance where optimizations can be made in terms of the hardware and software used for FirstSpirit. This Health Center is the entry point for the FirstSpirit ServerMonitoring.
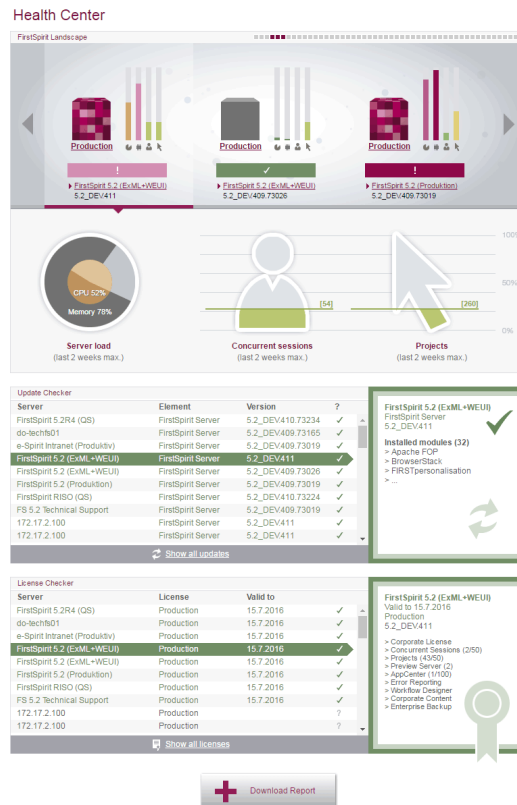
FirstSpirit Health Center

Thanks to the color coding used in the top area of the page ("FirstSpirit Landscape"), any looming **hardware** bottlenecks can be identified at a glance, so targeted measures can be taken at an early stage before there are any application delays or even system failures.

You can also use the Health Center to make sure, with the help of the system, that the local FirstSpirit server and/or all FirstSpirit servers on your network always have the most up-to-date software. Only a current **FirstSpirit version** can ensure that all FirstSpirit functions will be available and that the software will run as well and reliably as possible. You can use the Health Center to update your local server as well as other FirstSpirit Servers which can be reached on the network.

Note: To check if a FirstSpirit server uses the latest software version, a license ID is sent to e-Spirit, since this is all the information that is needed to carry out a detailed and accurate check. The license ID can also be used to check whether the maintenance contract for this license is still valid and whether the customer is therefore entitled to have errors fixed, for example.

If FirstSpirit is to run smoothly, it is also very important to use a valid **license** license that is appropriate for the type of use in question. Linked to the license are, among other things, the license holder's

maintenance permissions; this means that only if the customer has a valid license in conjunction with a valid maintenance contract will he be entitled to have reported errors fixed, for example. You can use the Health Center to update the license of your local server as well as those of other FirstSpirit Servers which can be reached on the network.

All the utilization/version and license data from this overview page can be summarized and downloaded in a file (*.json* format).

For more information see *FirstSpirit Manual for Administrators*,

- Chapter "FirstSpirit ServerMonitoring"

- Chapter "Licence configuration (fs-license.conf)"

and *FirstSpirit Installation Instructions*.

Modifications concerning the visualization of the used license were made within the scope of this Health Center implementation, too. The license with license type and licensee will now be displayed at the following points:

- FirstSpirit start page:

- FirstSpirit SiteArchitect:
    - start dialog ("Splash screen")

    - horizontal tool bar

- FirstSpirit ContentCreator:
    - start dialog ("Splash screen")

    - Page status area

Furthermore, FirstSpirit servers, on which the user was recently logged in, can be selected via the FirstSpirit start page. The start page of the selected server will open in a new browser window:
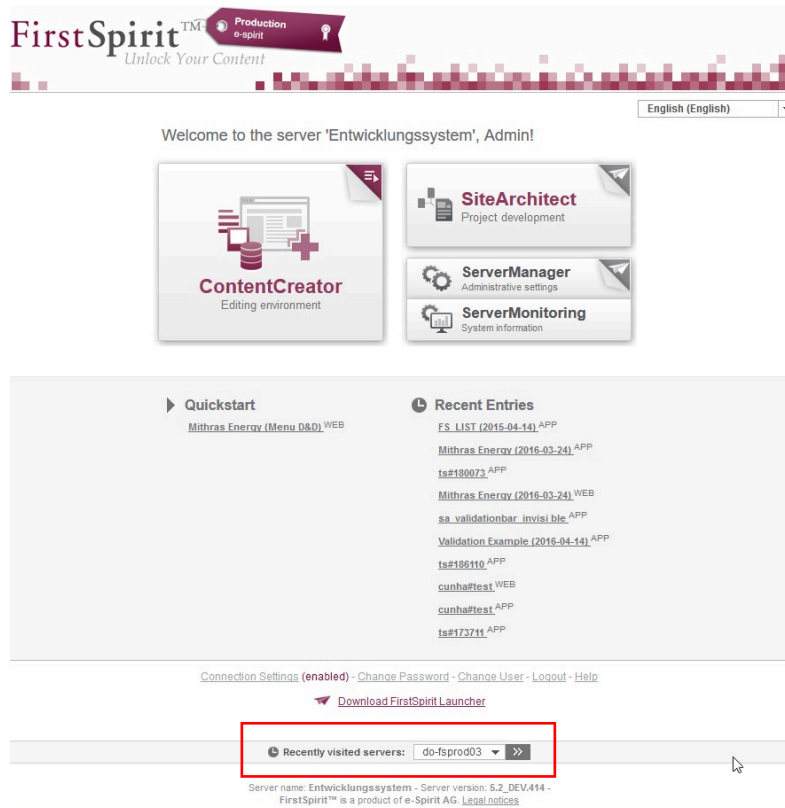
56.21 Database Handling: Internal Derby database will no longer be used by default in newly created projects 2018-06

During creation of a new FirstSpirit project (FirstSpirit ServerManager / "Project / Add new"), an administrator may choose whether the internal database (Apache Derby) which is provided as part of FirstSpirit should be activated for the project and thus if write access to this database should be enabled for this project. Until now, this option in the dialog "Project Configuration" was active ("on") by default, such that the internal Derby database could be used by default during every project creation process.

As of the current release of FirstSpirit, this option is inactive ("off") by default:
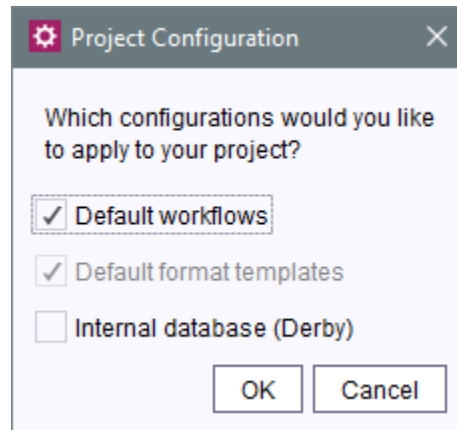
If this option remains "off" (inactive), the project must be configured to use a different database (FirstSpirit ServerManager / "Project properties / Databases / Selected") such that a database layer may be selected during creation of a database schema in the project (FirstSpirit SiteArchitect / "Templates / Database Schemata / New / Create new schema" or "Create schema from db"):
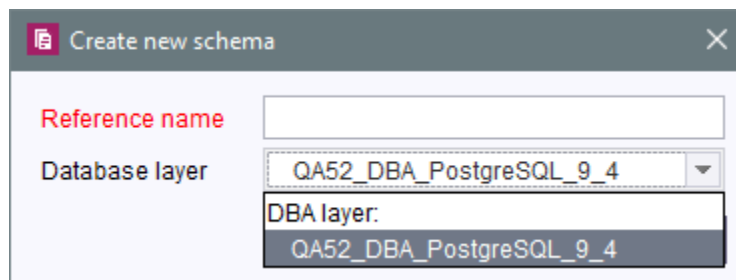
The option in the dialog "Project Configuration" will now always be regarded correctly.

The integrated Apache Derby database is not suitable for use in production scenarios and should only be used for testing. In order to further emphasize this distinction, the label of this option has now also been changed from "Default database" to "Internal database (Derby)".

56.22 Extending debugging in FirstSpirit ContentCreator 2018-07

A new switch has been added to `fs-server.conf` to simplify debugging specifically on development servers in FirstSpirit ContentCreator:

```
webedit.sendScriptCauseToClient
```

If this switch is set to *true* (`webedit.sendScriptCauseToClient=true`), the exception trace for script errors is sent to the browser. The cause of the error is displayed in more detail in the error dialog and the complete trace is displayed in the browser console. The function is deactivated by default (*false*).

56.23 Setting restrictions on the use of action templates 2018-06

Defining action templates

In FirstSpirit ServerManager, the table of action templates ("Server properties / Action templates") has been augmented with a new column "Copy allowed":
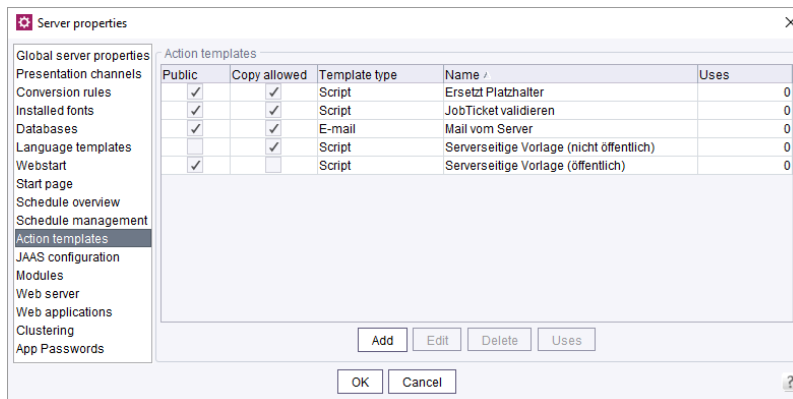
Copy allowed: If this option is active, the action template may be added to a schedule task as a copy, and this copy can subsequently be edited there. If this option is inactive, the action template can only be added to a schedule task as a reference.

Using action templates

In the server or project properties, page "Schedule management", an action template may then be used to add a new action to a schedule task:
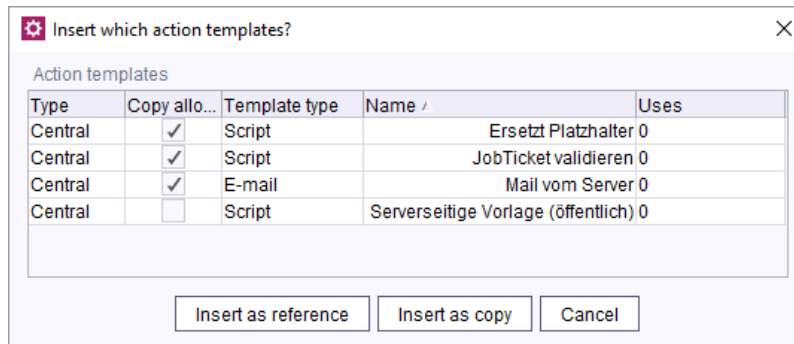
- Using **Insert as copy**, the action will be added to the schedule task as a copy. Copies of an action can subsequently be edited as usual.

- Using **Insert as reference**, the action will be added to the schedule task as a reference. References of an action cannot be edited within a schedule task; they will be displayed in the table with italic type.

56.24 Removal of "InternalJetty" 2019-02

As of FirstSpirit 2018-08, the functionality of the integrated Jetty server ("InternalJetty") is no longer supported.

As announced, this functionality will soon be removed entirely. All uses of "InternalJetty" should be migrated in a timely manner to alternative web server types that are recommended for use in production scenarios if this hasn't been carried out yet.

For further information, see (among others)

- FirstSpirit Community (https://community.e-spirit.com/docs/DOC-2167)

- "FirstSpirit Release Notes" for FirstSpirit 5.2R18
    - Chapter "Eclipse Jetty"

- "FirstSpirit Release Notes" for FirstSpirit 2018-09
    - Chapter "Migrating from the InternalJetty to a web server for productive use"

- "FirstSpirit Release Notes" for FirstSpirit 2018-10
    - Chapter "Usage of the 'InternalJetty' web server"

If you require assistance with migration, please contact e-Spirit Technical Support.

56.25 Obtaining the status of a FirstSpirit server during start-up 2018-12

During start-up of a FirstSpirit server, information about the current runlevel is now provided. These runlevels indicate if or when certain server functionality is available:

- `SHUTDOWN` (runlevel 0)
  The server is shut down.

- `IN_PROGRESS` (runlevel 20)
  The server is starting up or shutting down, no functionality is guaranteed to be available.

- `CORE_STARTED` (runlevel 40)
  Basic functionality is available, the server can be reached via the SOCKET port.

- `ROOT_WEBAPP_STARTED` (runlevel 60)
  The server can be reached via the HTTP port.

- `CORE_WEBAPPS_STARTED` (runlevel 80)
  The global web applications are available.

- `STARTED` (runlevel 100)
  All FirstSpirit functionality is available (including project-local web applications).

The runlevel is output in various places:

- according log output in the file `fs-server.log` or `fs-wrapper.log`
  Example:

```
INFO <timestamp> (de.espirit.firstspirit.server.RunLevelHolder): Reached run level:
    STARTED(100)
```

- in the file `~FS/.fs.lock`
  (except for runlevel 0, in which case this file does not exist)

- using the API, via the `RunLevelAgent`

(package `de.espirit.firstspirit.agency`, FirstSpirit Developer API)

API Example 1

```
import de.espirit.firstspirit.agency.RunLevelAgent;
runLevelAgent = context.requireSpecialist(RunLevelAgent.TYPE);
context.logInfo("current runlevel: " + runLevelAgent.getRunLevel());
```

API Example 2

```
import de.espirit.firstspirit.agency.RunLevelAgent;
import de.espirit.firstspirit.server.RunLevel;
import java.time.Duration;
runLevelAgent = context.requireSpecialist(RunLevelAgent.TYPE);
runLevelAgent.waitForRunLevel(RunLevel.STARTED, Duration.ofMinutes(60));
context.logInfo("Runlevel 100 erreicht: " + runLevelAgent.getRunLevel());
```

56.26 Expansion of the log file to include audit logging 2018-08

To ensure that FirstSpirit Servers operate securely and without any problems, audit functions have been added to the logging feature, enabling suspicious activities to be traced and assigned in order to prevent permissions being misused. Audit logging is disabled by default, but can be enabled as required with little effort.

The following activities can be tracked:

- Creating / deleting projects

- Creating / deleting users

- Creating / deleting groups

- Adding users to / removing users from a project

- Installing / refreshing / deleting modules

- Creating / refreshing / deleting schedules (globally and for a specific project)

- Creating / refreshing / deleting action templates (globally and for a specific project)

- All project amendments via the ServerManager apart from adding a font and changing the repository version

There are three log levels that can be output: INFO, DEBUG, and TRACE.

- **INFO:** General output of *who* has made *which* change *where*. The "who" is defined by the user name, the user ID, and the session context.

- **DEBUG:** This log level also provides an easy to understand, simple comparison view of the changes.

- **TRACE:** This outputs all the modified configurations in full. Changes are highlighted so they are easy to spot.

The new audit functions can be enabled in `fs-server.conf` by activating parameter **audit.logging.enabled=true**. Once enabled, audit logging is persistently stored in the `fs-server.log` file by default. Audit logging behavior can be adjusted using the Log4j configuration.

Example configuration for simple audit logging at the DEBUG level with an output in `fs-audit.log`:

```
# enable audit logging
log4j.logger.de.espirit.firstspirit.logging.audit=DEBUG, audit
# disable root logger for audit logging (fs)
log4j.additivity.de.espirit.firstspirit.logging.audit=false
log4j.appender.audit=org.apache.log4j.RollingFileAppender
log4j.appender.audit.File=/home/fstester07/firstspirit/log/fs-audit.log
log4j.appender.audit.MaxFileSize=5MB
# keep only one backup file
log4j.appender.audit.MaxBackupIndex=1
log4j.appender.audit.layout=org.apache.log4j.PatternLayout
log4j.appender.audit.layout.ConversionPattern=%p %d (%c) %m%n
```

Example audit logging with output of INFO and DEBUG messages in `fs-audit.log` and TRACE messages in `fs-traceaudit.log`:

```
# enable audit logging with two logfiles.
# The audit log for INFO and DEBUG and the traceAudit log for TRACE logging
log4j.logger.de.espirit.firstspirit.logging.audit=TRACE, audit, traceAudit
# disable root logger for audit logging (fs)
log4j.additivity.de.espirit.firstspirit.logging.audit=false
log4j.appender.audit=org.apache.log4j.RollingFileAppender
log4j.appender.audit.File=/home/fstester07/firstspirit/log/fs-audit.log
log4j.appender.audit.MaxFileSize=5MB
#don't log TRACE to the audit log
log4j.appender.audit.Threshold=DEBUG
# keep only one backup file
log4j.appender.audit.MaxBackupIndex=1
log4j.appender.audit.layout=org.apache.log4j.PatternLayout
log4j.appender.audit.layout.ConversionPattern=%p %d (%c) %m%n
log4j.appender.traceAudit=org.apache.log4j.RollingFileAppender
log4j.appender.traceAudit.File=/home/fstester07/firstspirit/log/fs-traceaudit.log
log4j.appender.traceAudit.MaxFileSize=5MB
# log TRACE only to the traceAudit log
log4j.appender.traceAudit.filter.a=org.apache.log4j.varia.LevelRangeFilter
log4j.appender.traceAudit.filter.a.LevelMin=TRACE
log4j.appender.traceAudit.filter.a.LevelMax=TRACE
# keep only one backup file
log4j.appender.traceAudit.MaxBackupIndex=1
log4j.appender.traceAudit.layout=org.apache.log4j.PatternLayout
log4j.appender.traceAudit.layout.ConversionPattern=%p %d (%c) %m%n
```

A logging entry at the INFO level when the members of a project group are changed looks like this, for example:

```
INFO 2018-07-10 08:34:50,443 (de.espirit.firstspirit.logging.audit.ProjectDTOLogger)
Benutzername ( id: 5471 ) changed project properties for
{ project : Mithras ; id : 296791 }
172.17.16.206 (fsSession=877290240094464842, fsLogin=FirstSpiritLogin,
session=SystemUser, client=Windows 10 10.0 amd64
(Java(TM) SE Runtime Environment 1.8.0_171-b11))
```

56.27 FirstSpirit ServerMonitoring: Display of user sessions 5.2R16

The display of user sessions in FirstSpirit ServerMonitoring was intermittently erroneous due to incorrectly stored graph data ("FirstSpirit / Monitoring / Sessions" and "Overview / State, panel Sessions").

As of the current version of FirstSpirit, values will be stored correctly again, and the graph display is again correct as of this version. Graph data which were intermittently incorrectly stored will continue to be displayed incorrectly in the graphs.

56.28 FirstSpirit web server configuration (inc. Jetty) 2018-08

"Eclipse Jetty", the open-source product integrated in FirstSpirit, is used to provide a web server with a servlet engine that runs as part of the FirstSpirit Server in the same VM. This integrated web server is only intended to be used for test purposes, so that customers can use FirstSpirit directly with web/application server functions and do not need to install and connect an external web server beforehand. In productive use, and especially in operational scenarios that require a more complex configuration, however, a dedicated web server of an Apache Tomcat type, for example, should always be used and integrated into FirstSpirit.

To become less reliant on implementation by the manufacturer, for security reasons and so that it is easier to provide support for the functions within FirstSpirit, the Jetty functionality that is already integrated ("InternalJetty") has been transferred to a system module ("fs-jetty.fsm"). The latest release represents the official release of this module.

The functionality of the built-in Jetty "InternalJetty" has been discontinued with FirstSpirit version 5.2R18 and support for it will cease with the latest release. The Jetty module can be used as an alternative (see the *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Server properties / Web server" chapter). However, the module is not designed for productive use either and as such it only supports basic configuration options. For example, configuration is only possible via the graphical interface (and not via text files in the file system, "fs-webapp.xml") and the module does not offer the configuration of the web server as a reverse proxy.
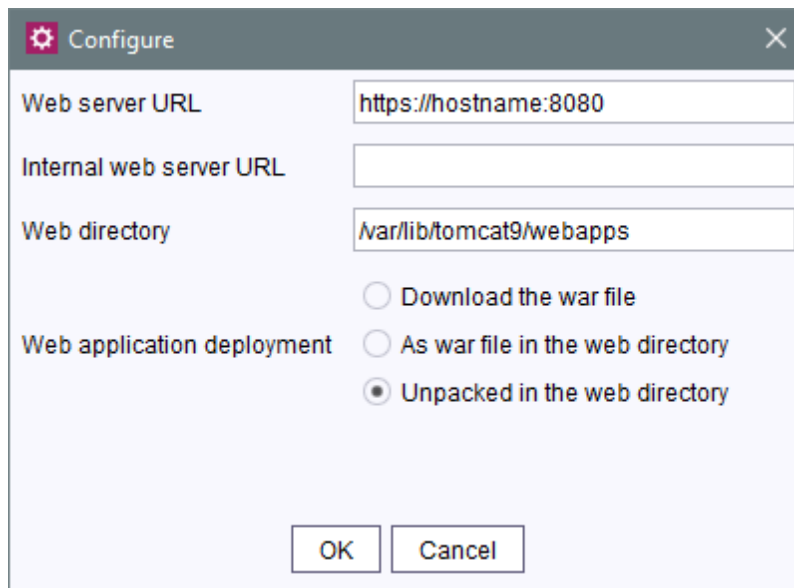
To enable customers who already have FirstSpirit installations to easily switch to more long-term solutions, the latest release provides new options for configuring web servers that can be used in production.

Expansion of the "External" web server type
The existing "External" web server type (external web servers which were not previously supported by FirstSpirit) has been expanded by adding a deployment option in the file system:

FirstSpirit does not support direct control of the referenced web server and other configuration options, which must be employed manually in the web server itself.

Web applications configured in FirstSpirit are combined in a War file for deployment. In the case of an external web server in the past, this could simply be downloaded and then had to be installed manually.

With the latest release, the War file can also

- Be saved directly to the specified web directory (**As War file in web directory** option), i.e., `web/fs5root.war` or `web/ROOT.war`

- Be unpacked in the specified web directory (**Unpacked in web directory** option), i.e., `web/fs5root/` or `web/ROOT/`

These options can be used in configuration scenarios where previously an Apache Tomcat, for example, was used in addition to the "InternalJetty" (parameter `INTERNAL_SERVLET_ENGINE=1` in file *fs-server.conf*) as an active external web server and used the same web directory as the "InternalJetty". In a development scenario, the unpacked War file can also serve debugging purposes.

Root web applications with / context names are saved in the file system with the name "ROOT".

The **Download War file** option allows the War file to be downloaded as before (e.g., in the "FirstSpirit ServerManager / Server properties / Web applications" area), then installed on the external web server manually.

For more information on using the "External" web server type, see the *FirstSpirit Manual for Administrators*,

■ "FirstSpirit ServerManager / Server properties / Web server"

■ "Configuration of the FirstSpirit Server / Integration in external web servers"

■ And more

New web server type "Aggregating Web Server"
A new type of web server has been added too: the "Aggregating Web Server":
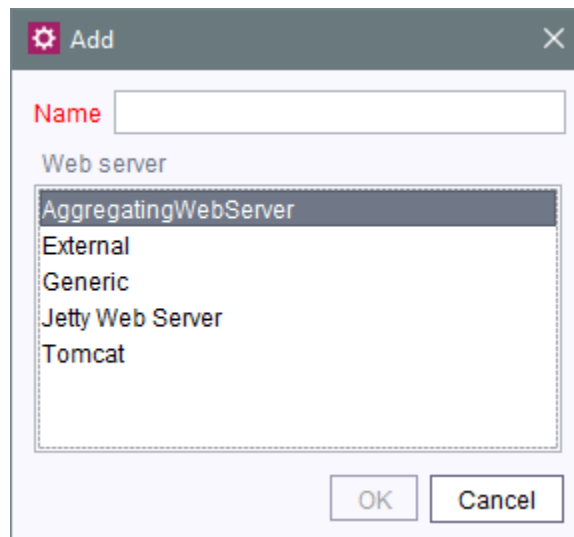
It supports the control of several web servers simultaneously, including those of different types. Actions such as deployment are performed on all configured application servers in parallel. This enables a fallback scenario to be put in place where, for example, a web server A and a web server B with the same settings / data are operated in parallel. If one of the web servers fails, the other can be used instead with no problem whatsoever (e.g., to configure / administer FirstSpirit). This function can be used to reproduce a configuration scenario, for instance, in which the "InternalJetty" and a Tomcat were previously operated in parallel.
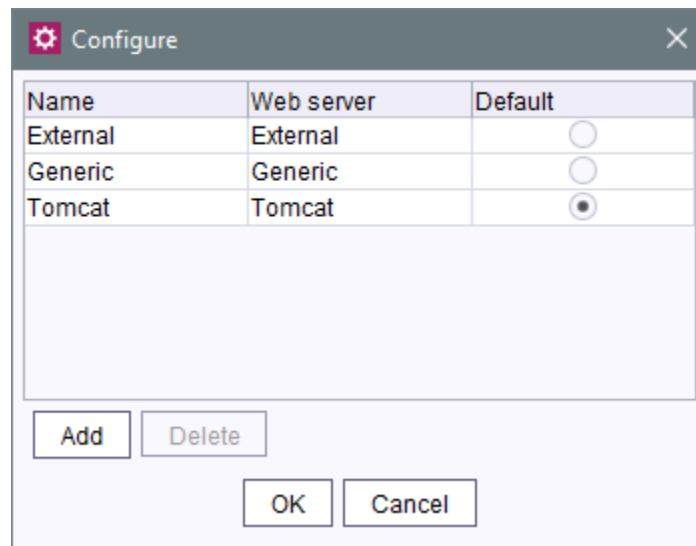
Add: This button can be used to add existing web servers to the Aggregating Web Server. "InternalJetty" type web servers cannot be selected (this type is no longer supported), nor can other web servers of the "Aggregating Web Server" type.

All actions taken for the Aggregating Web Server (e.g., installing and refreshing web applications) are executed for all the web servers selected here.

Default: This radio button is used to define a web server that will serve as the default web server. The URL configured for this web server is used universally to generate URLs for all web servers of the Aggregating Web Server.

56.29 Changed standard configuration of session cookies for new installations 5.2R5

FirstSpirit uses several standard web applications (fs5root, fs5webedit, fs5webmon, fs5preview, fs5staging) as well as optional, project-local web applications (fs5webedit_PROJECTID and fs5preview_PROJECTID).

The optional parameter `servletSessionCookieName` in the file `fs-server.conf` may be used to define a FirstSpirit-specific session cookie name for all web applications (see *FirstSpirit Manual for Administrators*).

In the past, this parameter was not specified with a preset value. If no value is defined for `servletSessionCookieName`, the cookie name specified by the WebApp server will automatically be used, in most cases, JSESSIONID.

Previous standard configuration:

```
# Servlet engine session cookie name.
# If left empty the servlet engine default is used (JSESSIONID in most cases).
# servletSessionCookieName=FS${FS_MAJOR}${FS_MINOR}SESSIONID
servletSessionCookieName=
# Servlet engine session cookie name for a specific webapp context path.
# 'ROOT' is the reserved name for the root webapp context path.
# servletSessionCookieName.ROOT=FS${FS_MAJOR}${FS_MINOR}ROOTID
# servletSessionCookieName.fs5webmon=FS${FS_MAJOR}${FS_MINOR}WEBMONID
# servletSessionCookieName.webappContextPath=FS${FS_MAJOR}${FS_MINOR}WEBAPPXYID
```

As of FirstSpirit version 5.2R5, the standard configuration of the parameters `servletSessionCookieName` (cookie name for all web applications) and `servletSessionCookieName.ROOT` (cookie name for the root application) will be as follows:

```
# Servlet engine session cookie name.
servletSessionCookieName=FS${FS_MAJOR}${FS_MINOR}SESSIONID
# Servlet engine session cookie name for root webapp context path.
servletSessionCookieName.ROOT=FS${FS_MAJOR}${FS_MINOR}ROOTID
```

This changed behavior <u>only affects new installations</u>. For existing installations of FirstSpirit, the previous configuration will be preserved.

56.30 Changed location for the JAR cache 2018-08

The FirstSpirit server automatically creates a working directory in the file system for storing JAR files ("JAR cache").

<u>Previous location:</u> The JAR files were stored in the user home directory of the FirstSpirit user (in the directory `.firstspirit`, for example `/home/[fsuser]/.firstspirit_5.2R1807/jars/`).

<u>Current location:</u> The JAR files are now stored on the server side in the "work" directory of the FirstSpirit server. By default, the JAR files are located below the FirstSpirit base directory in the directory `${cmsroot}/work/storage/jars`.
(`${cmsroot}` is used here as placeholder for the FirstSpirit base directory).

If the JAR files cannot be written on the server side because of missing write permissions, they are stored — as before — in the user home directory of the FirstSpirit user (e.g. in `/home/[fsuser]/.firstspirit_5.2R1807/jars/`).

56.31 Modified protocol for FirstSpirit web applications 5.2R4

Usually, FirstSpirit versions are forward and backward compatible if only the number of the minor or build version changes. In order to support the new FirstSpirit Health Center functionality, the protocol for FirstSpirit web applications was modified and is now incompatible to that of previous versions. As in any upgrade and downgrade procedure, it is necessary to ensure that the FirstSpirit web applications are compatible with the FirstSpirit server software's version.

If JAR files were manually deployed into web applications or onto web servers, the following message may be written to the log:

```
java.lang.IllegalArgumentException: Wrong protocol version (4653080000)
```

In this case, the JAR files must be updated manually.

56.32 Installing and updating the FirstSpirit server via tar.gz archives 2018-11

A new installation and update option for the FirstSpirit server was developed to meet the changed requirements of modern software operation.

This new development of as flexible an installation process as possible presents a challenge, since the previous Windows Installer will be obsolete when support for Oracle Java 8 for the FirstSpirit server ends (deprecated with FirstSpirit 2018-06).

The following aspects were considered during development:

- technological neutrality, i.e as little dependency as possible on operating system dependent software

- KISS principle (Keep it simple, stupid), i.e. preferably finding a simple solution

- exactly one tool for one purpose, here:
  - for installing

  - for updating

- the same tool for all supported operating systems

- separation of the operations layer i.e. what is required for controlling the FirstSpirit server

- modular and extensible design

Operating a FirstSpirit-Servers requires "Java" and the "Java Service Wrapper".

The "Java Service Wrapper" and related control files are provided by e-Spirit. They constitute the FirstSpirit server's operations layer. A Java version is not provided by e-Spirit.

This new development's result can be tested as part of an Early Access Programme ("EAP") starting with FirstSpirit 2018-11. An early, constructive feedback helps us to identify problems faster and more easily, thus allowing us to add missing functionality. For feedback please consult our Technical Support (for partners) or your designated Account Manager (for customers).

Installing viaTar-Gzip install archive

We chose to use the tar-gzip format for the installation process, since it is already being used for several purposes in FirstSpirit. The tar-gzip archive for installation can be identified by its filename: it begins with the prefix `fs-install` and the file ending is `tar.gz`, e.g.

```
fs-install-5.2.181105.tar.gz
```

Installing from a tar.gz archive consists of 5 steps:

1. Unpack the install archive. Where necessary the archive has to be decompressed first (**G(un)zip**), then extracted.

2. Copy the FirstSpirit server file (`fs-isolated-server.jar`) for the desired FirstSpirit version to the directory `~FS/server/lib-isolated`. (`~FS` = directory containing the FirstSpirit server installer files)

3. Copy the license file (`fs-license.conf`) to the directory `~FS/conf`. (the license file can be requested from your designated Account Manager or via https://help.e-spirit.de/.)

4. Set the environment variable `FS_JAVA_HOME` to the directory with the desired Java version (e.g. `FS_JAVA_HOME=C:\Program Files\Java\jdk1.8.0_181`).
   (alternatively the complete Java path can also be specified in the file `fs-wrapper.isolated.conf`.)

5. Start the FirstSpirit servers for the first time:
   - under Linux with `~FS/bin/fs5 start`

   - under Windows with `~FS\bin\fs5 install` and `~FS\bin\fs5 start` (by starting the service just installed)
     or (alternatively with `~FS\bin\fs5.cmd console` (without using a Windows service)

! **Attention!** For `fs5 install` under Windows you need system administrator privileges.

The following assumptions are made in this manual:

- You are installing in Isolated mode (see *Isolated mode* (→*Manual for Module Developers*)).

- The HTTP port will be 8000 and the socket port 1088.

Installing the Windows service

- `~FS\bin\fs5 install`
  The Windows service can be configured via the `wrapper.ntservice.*` parameters in the file `fs-wrapper.isolated.conf` (or `fs-wrapper.conf`, respectively).

Installing with a different port

- Before step 5) you can modify `HTTP_PORT` and/or `SOCKET_PORT` in the file `~FS/conf/fs-server.conf`.

Installing in legacy mode

- Instead of step 2) copy the file `fs-server.jar` for the desired FirstSpirit version to `~FS/server/lib`.

- Before step 5) delete the file `~FS/bin/fs5.mode` and rename `~FS/bin/fs5.mode.legacy` to `~FS/bin/fs5.mode`.

Hints for installing FirstSpirit under Linux:

- We strongly advise against operating FirstSpirit as the root user.

- Users and groups are not created automatically, i.e. the administrator has create and configure an account before installing FirstSpirit.

- Services also have to be managed by the administrator - with `firstspirit5/bin/fs5.init` we are providing an example for `SysV-Init`.

Demo project "Mithras Energy"

After the installation you can also download the demo project "Mithras Energy" with the respective modules and install both via the ServerManager. To be able to fully use the demo project the module Apache FOP (`fs-fop.fsm`) is required.

Updating via tar-gzip update archive

In order to keep the operations layer of a FirstSpirit server ("Java Service Wrapper" and control files) up-to-date, we now provide a so-called "update archive". Again we chose tar-gzip as the file format. The archive's file name starts with `fs-update` and the file ending is `tar.gz`, e.g.

```
fs-update-5.2.181105.tar.gz
```

To update the operations layer unpack the archive in your FirstSpirit server directory.

Example call under Linux:

```
~/firstspirit5$ tar xvfz fs-update-5.2.181105.tar.gz
```

After unpacking take note of the unpacked files' user and group access right, and adjust them if necessary.

Since this new update process is still in the EAP phase, we do not recommend using it in production environments.

56.33 Isolated mode: Jetty web server is now also available as a module

5.2R13

Using the open source product "Eclipse Jetty", which is integrated into FirstSpirit, a web server as well as a JSP/Servlet-Engine are provided, running as part of the FirstSpirit server in the same VM.

As part of the refactoring for the module development in the so-called "Isolated mode" (see *FirstSpirit Developer Manual for components (German only)*, chapter "Isolated mode"), Jetty has been implemented as a module: `fs-jetty.fsm`. Because of the isolated class loading the Jetty server behaves like an external web server and is therefore suitable for being used with a FirstSpirit server operated in "Isolated mode". The module may be installed parallel to the previous implementation "InternalJetty" (see *FirstSpirit Manual for Administrators*, chapter "Apache HTTP Server with the Jetty servlet engine" e.g. the parameter `INTERNAL_SERVLET_ENGINE` in `fs-server.conf` is set to 1 or undefined).

In order to use Jetty as a module, the module has to be installed on the FirstSpirit server and the corresponding service "JettyService" has to be started in the server properties of the ServerManager. Here it is also possible to configure the favored port (changing the port requires a restart of the service):
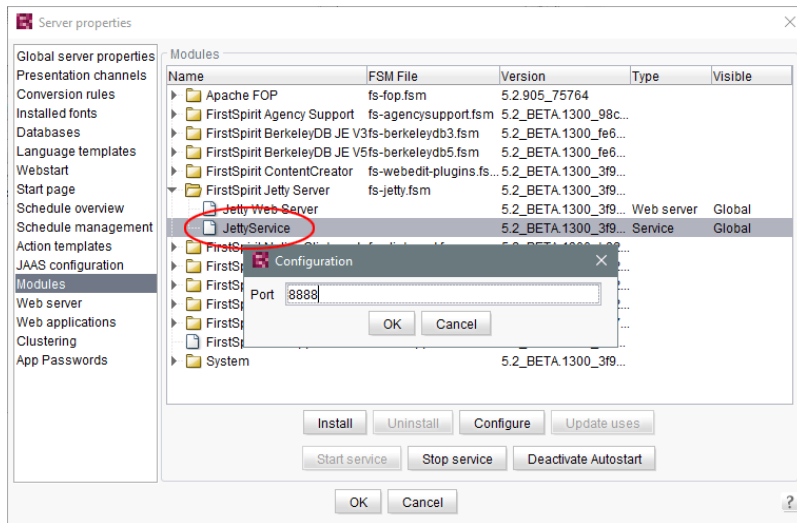
A new web server of the type "Jetty Web Server" may be added using "Webserver" in the server properties (e.g. with the name "IsolatedJetty"):
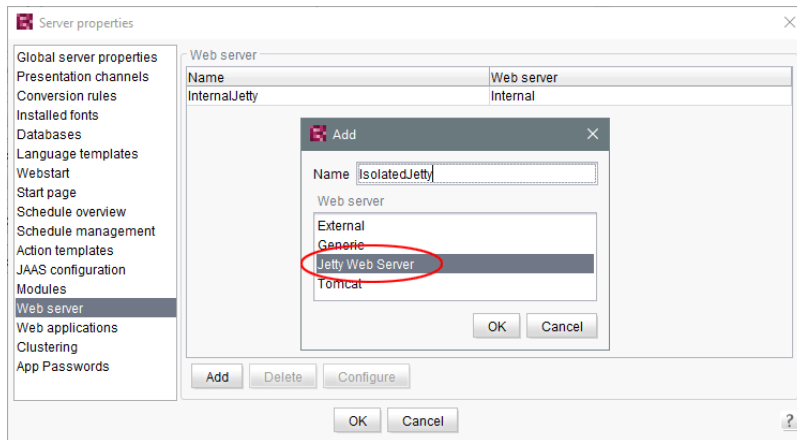
The web server may now be selected in the project properties under "Web components":
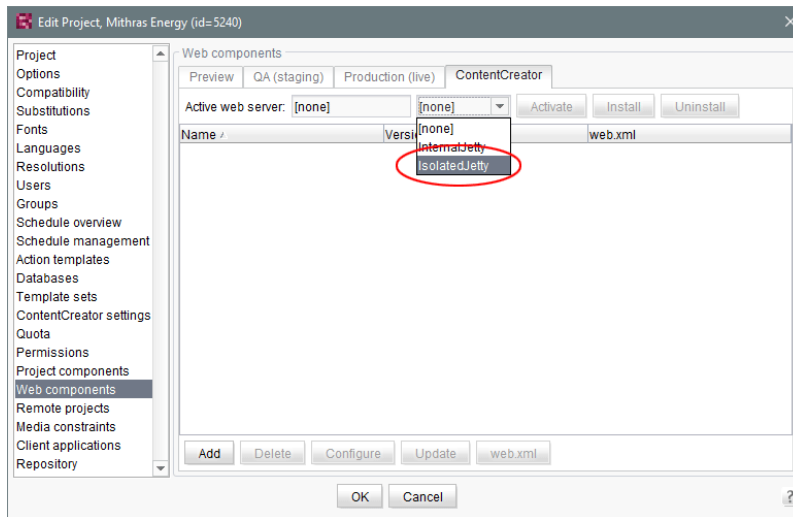
> **!** Both the previous implementation "InternalJetty" as well as the new module are not suitable for productive use and should only be used for testing purposes.

56.34 Java-version-specific wrapper files can be edited via ServerMonitoring   2018-07

The server start and the FirstSpirit Server Java system can be configured using the "wrapper" files `fs-wrapper*.conf`.

Previously, `fs-wrapper-j*.include.conf` files containing Java-version-specific parameters could only be edited in the file system.

With the latest FirstSpirit release, the parameters of the wrapper files `fs-wrapper-j#.include.conf` can – like the default wrapper file `fs-wrapper.conf` – also be edited via FirstSpirit ServerMonitoring, and specifically under "FirstSpirit / Configuration / Start options":

The text window at the top contains the configuration of the `fs-wrapper.conf` or `fs-wrapper.isolated.conf` file, if the FirstSpirit Server is operating in "Isolated mode".

The text window at the bottom contains the configuration of the `fs-wrapper-j1.include.conf` or `fs-wrapper-j2.include.conf` file, depending on which Java version the FirstSpirit Server is using (`fs-wrapper-j1.include.conf` if the server is using Java 8, `fs-wrapper-j2.include.conf` if the server is using Java 10).

Click on **Edit** to edit the existing configuration.

Click on **Save** to save the changes in the corresponding configuration file(s). If invalid configuration settings are made, the error will be flagged up in ServerMonitoring when the configuration is saved and the save operation will not be completed.

56.35 JSON validator   2019-01

JSON (*JavaScript Object Notation*, see https://json.org/) is the standard format for *FirstSpirit CaaS*. Example:

```
{ "headline": "First Page", "text": "my text" }
```

With the current release FirstSpirit now supports JSON validation to facilitate template development.

To use the validator you have to create a presentation channel, under "Presentation channels" in the ServerManager, that uses "JSON-Validator" for post processing:
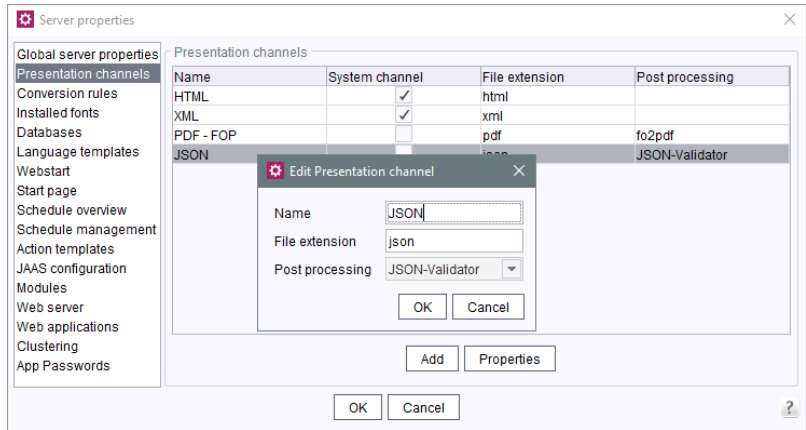
In your project's properties under "Template sets" you create a template set which is using the presentation channel created before:
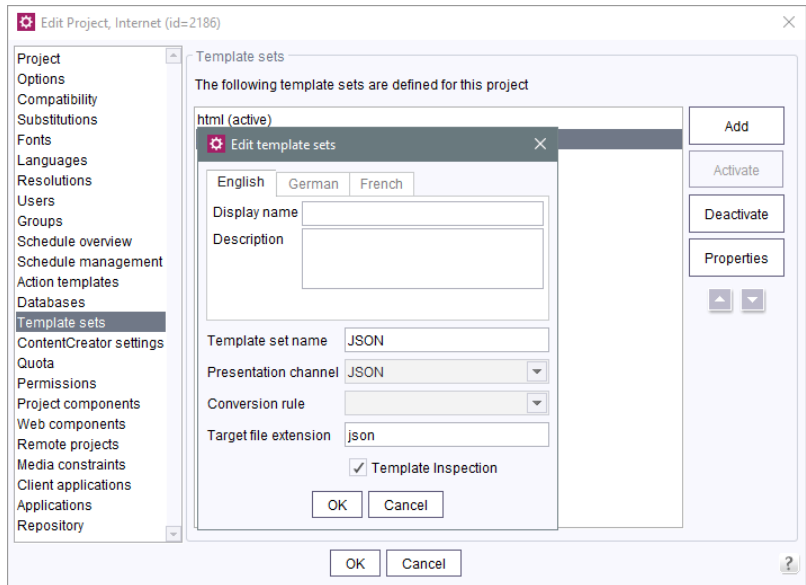
Validation errors are are indicated by incomplete JSON output in the preview pane, i.e. by the JSON not being shown until the last closing curly bracket.

Error details can be found under "Display preview errors" in the respective page's context menu under *Page content* or *Site structure*:
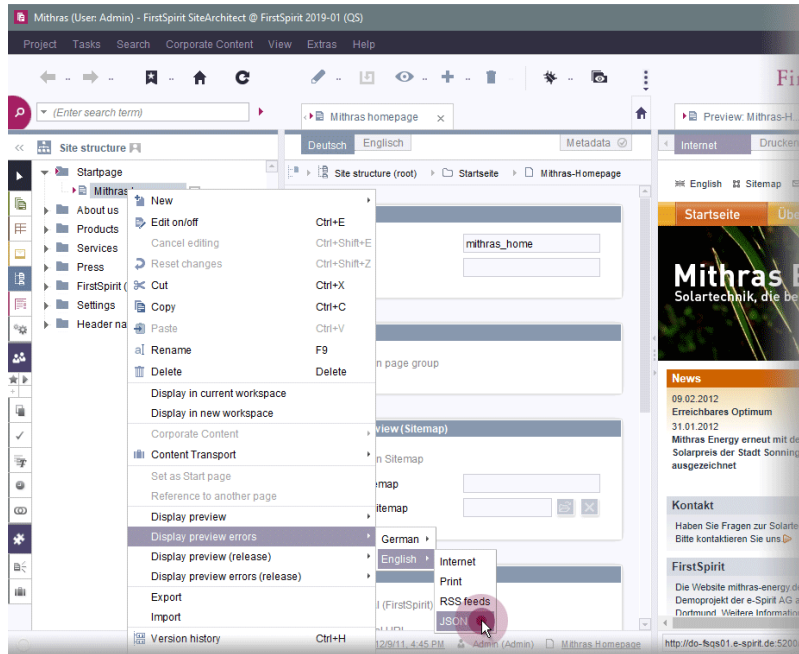
In addition, template validation has been extended to support JSON in general (when saving the template).

56.36 Configuration of JVM time-to-live (TTL) for DNS name look-ups

2018-11

Caching of DNS entries can now optionally be configured via the parameter `networkaddress.cache.ttl` in the file `fs-server.conf`.

```
# Permanent Caching - Java Default Setting
networkaddress.cache.ttl=-1
```

```
# Caching limited to a maximum of 60 seconds
networkaddress.cache.ttl=60
```

Background: The Java Virtual Machine (JVM) stores DNS name look-ups in the cache for a certain amount of time, known as time-to-live (TTL). A long-term TTL is problematic if the DNS name entries change, e.g. due to fail-overs (e.g. for sending e-mails) if the IP address of the SMTP server changes or due to operation in cloud mode. If the IP address of a resource is changed, a low TTL value (e.g. 60 seconds) ensures that the FirstSpirit server can obtain and use the new IP address of that resource by way of a new DNS query.

The default TTL value depends upon the JVM that is in use. The default TTL value corresponds to the value of the parameter of the same name in the `java.security` file of the JDK or `-1` if no corresponding value was set. In the latter case (value is `-1`), the DNS entries are cached until the next restart of the Java VM.

The configured value is read from the configuration file as the server starts and is adopted accordingly via `Security.setProperty`.

If the parameter is not set, the JDK's TTL value is preserved.

56.37 Configuration of session cookies (fs-server.conf) 5.2R5

Within the FirstSpirit web applications (fs5root, fs5webedit, fs5webmon, fs5preview, fs5staging), unified session cookies can be used. In conjunction with an application server or a firewall (operated on the application server), additional session cookies can be set, e.g. for authentication purposes. The names of these additional session cookies must be made known to FirstSpirit via the parameter `clientCookieNames`. During start of SiteArchitect or ServerManager, FirstSpirit passes the cookies defined in this parameter via the Java Web Start file (`FirstSpirit.jnlp`) or the FirstSpirit Launcher (`FirstSpirit.fslnch`) downloaded on the client side. The cookies will also be passed to the browser engine used in the project and thus will be available for use in the integrated preview in SiteArchitect. The same cookie will be used in three distinct session contexts (web browser: HTTP client, SiteArchitect: client/server communications, SiteArchitect: integrated browser engine).

As of the current FirstSpirit version, the configuration file "fs-server.conf" now allows optional configuration of specific values for these non-FirstSpirit session cookies. The new attributes can define values for domain, path, and the secure flag of the session cookie. This is necessary when the corresponding values cannot be read directly from these non-FirstSpirit session cookies.

`clientCookie.{cookieName}.domain`: Specifies the domain used for the session cookie. If no value is given, the cookie will carry the URL from which the client was started (including the host name).

`clientCookie.{cookieName}.path`: Specifies the path of the session cookie. Default value: `/`

`clientCookie.{cookieName}.secure`: The secure flag limits the transmission of the session cookie. If the value is `true`, the cookie will only be sent to the server if communication takes place via HTTPS (if the URL meets the domain and path requirements). If the value is `false`, the cookie will be sent in both HTTP and HTTPS communications.

Example (`fs-server.conf`):

```
clientCookieNames=cookieName1
clientCookie.cookieName1.domain=*.domain.com
clientCookie.cookieName1.path=/
clientCookie.cookieName1.secure=true
```

56.38 Configuration settings for the server start depending on the Java version (fs-wrapper.conf) 2018-11

The `conf` directory of the FirstSpirit server contains files that hold important configuration settings for the server start and the Java system of the FirstSpirit server. The following files may be present:

- the file `conf/fs-wrapper.conf` (general configuration of the Java VM for non-isolated installations)

- the file `conf/fs-wrapper.isolated.conf` (general configuration of the Java VM for isolated installations)

- the file `conf/fs-wrapper.slave.conf` (general configuration of the Java VM for cluster nodes)

- the file `conf/fs-wrapper-j1.include.conf` (configuration of special start parameters for Oracle Java 8)

- the file `conf/fs-wrapper-j2.include.conf` (configuration of special start parameters for Oracle Java versions >= 9)

New behavior: The configuration of the wrapper has been adapted so that the Java-specific parameters can be passed in a single configuration file. Additional syntax is used to configure for which Java version

the parameters are evaluated (see below). The additional include files `fs-wrapper.isolated-j#.include.conf` are no longer needed with the new configuration and can be deleted after the configuration has been adapted.

The Java-specific parameters are configured via `wrapper.java.additional.<n>.java_version.min` or `wrapper.java.additional.<n>.java_version.max` in the appropriate file.

<u>Syntax:</u>

FirstSpirit may only be started with Java versions >= 8:

```
wrapper.java.version.min=8
```

This parameter is only used for Java version 8. As of Java version 9, this parameter is ignored:

```
wrapper.java.additional.40=-XX:+UseConcMarkSweepGC
wrapper.java.additional.40.java_version.max=8
```

This parameter is only used for Java versions >= 9. For Java version 8 this parameter is ignored:

```
wrapper.java.additional.60=--add-exports=java.base/sun.security.util=ALL-UNNAMED
wrapper.java.additional.60.java_version.min=9
```

This parameter is only used for Java version 10. It is ignored for all other Java versions:

```
wrapper.java.additional.65=--add-modules=java.activation
wrapper.java.additional.65.java_version.min=10
wrapper.java.additional.65.java_version.max=10
```

A complete description of the parameters and further information can be found here:

https://wrapper.tanukisoftware.com/doc/english/prop-java-additional-n.html

Prerequisite for using the new configuration:
An update of the Tanuki Java Service Wrapper to version 3.5.36 is necessary.

The update can be performed:

- via the file `fs-update-<version>.tar.gz`. (when using the new Tar-Gzip update archive, see "Installing and updating the FirstSpirit server via tar.gz archives") or

- as described in the FirstSpirit installation guide using the appropriate installer (currently still recommended for productive environments, since updating via the file `fs-update-<version>.tar.gz` is still in the EAP phase).

> **!** Java EA versions are not supported, i.e. it is not possible to start the FirstSpirit server with a corresponding version, e.g. OpenJDK Runtime Environment 18.9 (build 11-ea+25).

When is the change to the new configuration necessary?

It is necessary to adapt the existing configuration to the new parameters:

- after an update of the Java Service Wrapper (see above) *and*

- when using a Java version >= 9

In this case, the FirstSpirit server <u>will no longer start</u> without the configuration adjustment.

For all other cases (Java version < 9, older version of the Java Service Wrapper) <u>the configuration changes are not mandatory.</u>

<u>For installations in Isolated mode and when using Java versions >= 9</u> the environment variable `JAVA_VERSION_IDENT` must be set.

Background: When updating via `fs-update-<version>.tar.gz`, the files `bin/fs5` (under Linux) and `bin/fs5.cmd` (under Windows) are also updated. Since the new versions of the file `conf/fs-wrapper.isolated.conf` no longer use "includes", the updated versions of the files `bin/fs5` (under Linux) and `bin/fs5.cmd` (under Windows) no longer contain a corresponding check. In order to be able to use the previous file `conf/fs-wrapper.isolated.conf` unchanged, it makes sense to set the result of the corresponding check via the environment variable `JAVA_VERSION_IDENT`:

- Value `1` when using Java 8

- Value `2` when using newer Java versions (>= 9)

How to change an existing configuration?

The file `conf/conf-all/fs-wrapper.conf.default.txt` contains a default configuration provided by e-Spirit using the new syntax. This default configuration can be used as foundation for the new configuration.

> **!** The provided standard configuration of the Java Service Wrapper may differ from the configuration in concrete customer installations. The concrete parameters and values of the files `fs-wrapper.conf` respectively `fs-wrapper.isolated.conf` and the include files `fs-wrapper-j#.include.conf` must be incorporated in the new configuration and adapted to the new syntax (if they differ from the standard configuration).

56.39 Conversion of the Oracle Berkeley DB (EAP) 5.2R19

The latest version of FirstSpirit provides a conversion tool (currently still the Early Access Program ("EAP")) that can be used for the simple conversion of all data stored in Berkeley DBs on existing FirstSpirit servers to Berkeley DB 7 format by entering just a few commands in the command line ("project repositories" and "internal repositories"). The exact procedure is described in the section "Recommended procedure for a conversion to Berkeley DB "7. As server-level data also has to be converted, a conversion of this nature can only be performed when the FirstSpirit Server is offline in order to prevent any loss of data. A conversion will generally be completed in a short time. Only in exceptional cases may it take up to several hours; for example, in the event of very large and/or numerous projects. To make it easier for customers to calculate appropriate maintenance windows, plans are underway to publish comparison values relating to project size and conversion duration in future release notes. These values will have been established from conversions that have already been performed in production conditions.

Berkeley 7 is not compatible with Java 7. The FirstSpirit Server therefore requires at least Java 8 in order to use Berkeley 7.

Compatibility of FirstSpirit versions

An official release of Berkeley version 7 is intended for FirstSpirit version 5.2R20 or R21 (April/May 2018). Following a transitional period, during which Berkeley versions 3, 5, and 7 will be able to be used in parallel on FirstSpirit servers, it is planned – for reasons relating to maintainability – to only offer version 7 and to withdraw support for versions 3 and 5 from around the end of 2018. After this point in time, FirstSpirit servers which are still running version 3 and/or 5 will then no longer start. Consequently, a server-wide switch to version 7 must be completed by this date. Switching from version 3 or 5 to 7 at the earliest possible opportunity is therefore recommended.

Following a conversion to Berkeley version 7, a FirstSpirit downgrade to versions earlier than version 5.2R18 will no longer be possible. A downgrade to FirstSpirit version 5.2R18 is possible, however. After a downgrade, the file `fs-berkeleydb7.fsm` should be manually deleted from the `../data/modules` sub-directory.

Using the conversion tool

The "BerkeleyUtil" conversion tool is a command line tool that can be used to convert all data from the project repositories and internal repositories of a FirstSpirit server to Berkeley DB 7 format. The tool is contained in the `fs-server.jar` file and is rolled out to the "bin" directory when the server is started.

Prerequisites:

- Oracle Java: min. version 8

- The tool is only permitted to be used once the corresponding FirstSpirit server has been powered down.

- Sufficient memory space: Three times the memory space of the biggest database that is being converted will potentially be required temporarily.

Call and options:

```
java -jar BerkeleyUtil.jar COMMAND [OPTION]... PATH
```

First `-jar` must be used to specify the path under which the `BerkeleyUtil.jar` file is located on the FirstSpirit server, by default in the "bin" directory, e.g.

```
java -jar firstspirit/bin/BerkeleyUtil.jar
```

The following commands can be used for the COMMAND placeholder:

- `-c, --convert`: converts all uses below the specified directory (see PATH below) to Berkeley DB version 7 (complete FirstSpirit server)
  - `--convert-acl`: converts all ACL databases to Berkeley DB 7

  - `--convert-project`: converts all project repositories to Berkeley DB 7

- ■ `--convert-server`: converts all internal repositories to Berkeley DB 7

- ■ `-d, --dump`: repairs the desired repository as a copy (standard mode I)

- ■ `-h, --help`: display of the help

- ■ `-l, --list`: lists the names, version, and path of all repositories on the server

- ■ `-r, --recover`: attempts to restore the desired repository (standard mode II)

- ■ `-R, --RECOVER`: attempts to restore the desired repository (with advanced error corrections)

- ■ `-t, --verify`: checks the desired repository

The commands cannot be combined, i.e. each command requires a separate call.

Important: The commands `-d`, `-r` or `-R` should only be used following a prior analysis. Please contact Technical Support for support issues.

The following `OPTION` can be used:

`--dump-dir <directory>`: For the conversion or recovery of a repository, a copy is first created that is then imported. This call can be used to specify a directory in which the temporary copy is to be created.

`PATH` must be used to specify the path to the directory to be taken into account by the tool, e.g.

- ■ to the root directory of the FirstSpirit server: `/firstspirit`

- ■ to a directory of a Berkeley DB on the FirstSpirit server, e.g. `/firstspirit/data/ projects/project_123/repository` (repository of a project), `/firstspirit/data/ projects/project_123/registry` (registry of a project)

Example call:

```
java -jar firstspirit/bin/BerkeleyUtil.jar -l firstspirit
```

This call lists all Berkeley databases of the FirstSpirit server installed in the "firstspirit" directory and displays its versions.

Recommended procedure for a conversion to Berkeley DB 7

1) It is recommended to test the conversion to version 7 for one (small test) project first which uses the Berkeley DB in version 5, via switching the version in FirstSpirit ServerManager in the project settings, "Repository" section, "Backend" dropdown list. When the conversion was successful (= the project can be opened and edited in FirstSpirit SiteArchitect), you can proceed with step 2).

2) The FirstSpirit server must be powered down for a conversion via the conversion tool. For this reason, a conversion should be carried out during a maintenance interval.

3) Migrate the entire FirstSpirit server to version 7.
To do this, run the following example call (modified to the path of the root directory of the FirstSpirit server):

```
java -jar -Xmx#m firstspirit/bin/BerkeleyUtil.jar -c /firstspirit
```

The conversion process should be started with sufficient memory. As a rule of thumb, `-Xmx#m` should be used with the same value as defined for the `wrapper.java.maxmemory` for the FirstSpirit server (see *FirstSpirit Manual for Administrators*).

Important: The conversion process can take some time depending on the size and number of the repositories present on the FirstSpirit server (a maximum of a few hours). The conversion should not be canceled during this time as this could cause data loss and inconsistencies! In the event of canceling the process there is no rollback, and manual intervention will be required. Please contact Technical Support.

4) If the conversion was completed successfully, a corresponding message is output in the log, e.g.

```
<timestamp> [INFO Bdb7Convert] BerkeleyDB version 7 conversion successful,
    marker file written: firstspirit/data/server/berkeleydb.7
```

5) The following parameter must be entered in the `fs-wrapper.conf` file:

```
-DBerkeleyDB7=1
```

6) The FirstSpirit server can then be started and used as normal.

Troubleshooting

If a conversion is not completed successfully, a corresponding message is output in the log, e.g.,

```
<timestamp> [WARN Bdb7Convert] BerkeleyDB version 7 marker file not written,
    1 errors during the conversion process.
```

In this case, running the conversion again can resolve the issue.

If this is not successful, please contact Technical Support. The same applies if a conversion process had to be canceled. Message in the log on server start:

```
FATAL <timestamp> (de.espirit.firstspirit.server.ServerManagerImpl):
    Incomplete BerkeleyDB version 7 conversion detected
```

For assistance from Technical Support, please have the log file from the last execution of the conversion tool to hand.

56.40 Conversion of the Oracle Berkeley DB (EAP) 5.2R20

Various improvements have been made to the conversion tool `BerkeleyUtil.jar` provided with FirstSpirit version 5.2R19. This tool can be used for the simple conversion of all data stored in Berkeley DBs on existing FirstSpirit servers to Berkeley DB 7 format by entering just a few commands in the command line, and it is still in "EAP" state (early access program).

New parameters and modifications:

- The command `-l` (`--list`) now defines the size, in addition to the name, path, and version of all repositories on the server.

- The option `-v` (`--verbose`) can now be used to output additional logs, such as the stacktrace for error messages.

- The `-f` (`--fast`) option allows faster in-place conversion of project repositories. However, this should only be done if there is an up-to-date backup, since in rare cases existing problems in a repository can lead to it being irreparably damaged during a conversion.
  By default, a copy of the repository to be converted is created first, but when the option `-f` is used this copy is not created. Although it is more secure, the process of copying requires a little more time and temporary memory space. It also optimizes the repository to be converted so that it no longer contains unnecessary data.

Furthermore, write access from `BerkeleyUtil.jar` is now for security reasons only possible if the corresponding database is not opened for writing by another process.

Note: Conversion via `BerkeleyUtil.jar` should be performed on Unix systems by that user for which the FirstSpirit-Server was installed.

56.41 Conversion tool "BerkeleyUtil": Exclusion of directories 2018-11

The conversion tool "BerkeleyUtil" may be used to convert all data stored in the Berkeley DBs on existing FirstSpirit servers to the Berkeley DB 7 format, comfortably with few commands and via the command prompt.

The tool now provides the option to exclude individual directories from consideration and conversion. By default, all directories whose names begin with `.` will be excluded. If other directories should be excluded, these must be provided via the parameter `--exclude` in the form of a suitable RegEx.

For further information, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit ServerManager / Project properties / Repository".

56.42 "BerkeleyUtil" conversion tool: Function of the "--convert-server" option has been corrected 2018-07

Oracle Berkeley DB is used in FirstSpirit as a repository for saving content data. Until now, versions 3 and 5 have been in use and running reliably and stably for many years. However, in order to benefit from performance advantages, to remain at the forefront of technical development, and last but not least, for security reasons, plans are in place to update the internal Berkeley DB to version 7 in the near future. The "BerkeleyUtil" tool can be used for the simple conversion of all data stored in Berkeley DBs on existing FirstSpirit servers to Berkeley DB 7 format by entering just a few commands in the command line.

In the latest FirstSpirit release, an error affecting the conversion of Berkeley DBs with the "BerkeleyUtil" conversion tool when using the `--convert-server` option has been resolved. The error could result in incorrect project states being generated.
Incorrect project states can now be corrected by converting the server again (option `-c`).

For more information about the "BerkeleyUtil" conversion tool, see *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Repository".

56.43 Conversion tool "BerkeleyUtil": In the event of an error, the original data is saved in a backup folder. 2018-07

The conversion tool "BerkeleyUtil" can be used to convert data from existing FirstSpirit servers saved in Berkeley databases into the Berkeley DB 7 format. This can be done conveniently with only a few commands within the command prompt.

In case of problems occurring while converting, the original data from the database is saved inside a backup folder on the FirstSpirit server. This is done even if said problems are solved during the conversion. The data can be looked at and possibly analysed at a later time. The backup folder is created next to the original database folder. The name of the folder consists of the name of the original folder, suffixed by *backup* and the time stamp of the conversion. The creation of the backup folder is persisted by a warning in the log file, e.g.

```
[WARN BdbRecover] Keeping backup directory due to errors or warnings during recovery:
    ./data/schedule/624060/acl_backup_20180711_110345
```

In case of listing or checking databases (`-l` / `--list` or `-t` / `--verify`) all existing backup folder are logged as warnings.

```
[WARN BdbScanner] Incomplete conversion/restore detected:
    ./data/schedule/624060/acl_backup_20180711_110345
```

56.44 Logging in "fs-server.log" (NoRouteToHostException) 5.2R7

Due to a change regarding the communication between multiple FirstSpirit servers in a network, an increased logging in the log file `fs-server.log` like

```
INFO  15.03.2016 10:46:23.550 (org.apache.http.impl.execchain.RetryExec): I/O
exception (java.net.NoRouteToHostException) caught when processing request to
{}->http://testserver:8000: No route to host
```

may happen, e.g. when a FirstSpirit server is not reachable ("http://testserver:8000" in the example above).

These entries can be suppressed with the newly implemented parameter `log4j.logger.org.apache.http.impl.execchain.RetryExec` in the file `fs-logging.conf`. The parameter has to be set to `WARN` in order to increase the log level:

```
log4j.logger.org.apache.http.impl.execchain.RetryExec=WARN
```

With FirstSpirit servers running the current FirstSpirit version the parameter will be set by default. For existing FirstSpirit servers upgraded to the current FirstSpirit version, the parameter has to added manually to the file `fs-logging.conf` (in the subdirectory `conf` of the FirstSpirit server).

For more information regarding the file `fs-logging.conf` please see *FirstSpirit Manual for Administrators*, Chapter "Logging configuration (fs-logging.conf)".

56.45 MBeans for visualization and control of database connections ("ConnectionPool") 5.2R5

Java Management Extensions (JMX) provide a standardized interface for the management of Java applications. Using the JMX console, it is possible to monitor and manage a FirstSpirit server. While FirstSpirit ServerMonitoring is primarily used for manual monitoring of a FirstSpirit server, the JMX interface is used for automatic monitoring and can integrate into existing, enterprise-wide monitoring infrastructures. All values and operations are provided by Managed Beans ("MBeans").

The current FirstSpirit version provides MBeans in the JMX console entry "ConnectionPool" which allow visualization and control of database connections.

For further information, see *FirstSpirit Manual for Administrators*, chapter "ConnectionPool".

56.46 Media Constraints: MIME Type Detection 5.2R17

Previous behavior: Media constraints for non-image files are generally based upon file name extensions, not MIME types.

New behavior: In project settings for media constraints, the new option "MIME probing has priority" is available as a checkbox.
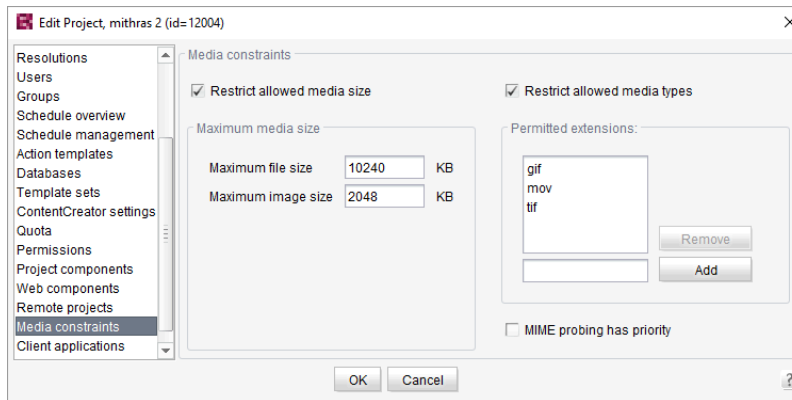
- If the option is *active* (checkbox marked), media constraints prioritize MIME type detection over the file name extensions set in "Permitted extensions". If the detected type does not correlate to the permitted file name extensions, a file upload will be denied.

- If the option is *inactive* (checkbox not marked), media constraints for non-image files consider only file name extensions, not MIME types.

56.47 Media: Assigning File Extensions to MIME Types 5.2R10

The FirstSpirit Media Store is designed to manage files of different formats within a project. They can be uploaded to FirstSpirit via SiteArchitect and ContentCreator.

Most file formats are already known by FirstSpirit and they are filed in the Media Store with the appropriate MIME type when uploaded. It is possible to search for MIME types in SiteArchitect, for example, and access them in templates and via API. For special file types which are not known in FirstSpirit, mapping can now be carried out on the desired MIME types, namely via a new parameter in the `fs-server.conf` configuration file:

```
mime.types.additional
```

Using this parameter, the desired MIME type and the file extension can be specified, separated with a colon. Several mappings can be specified, separated with semicolons.
Example:

```
mime.types.additional=application/zip:fsr;text/plain:conf
```

If this parameter is edited via ServerMonitoring, changes are factored in immediately; the server does not need to be restarted.

In this context, the detection of file extensions when uploading files to FirstSpirit has also been improved.

56.48 Possible problems when updating FirstSpirit with external application servers 2018-06

When using an external application server (Apache Tomcat, Jetty-Modul, ...), where FirstSpirit web applications are automatically installed as WAR files, updating FirstSpirit (e.g. to version 2018-06) can cause problems. As a result the application server will start up much slower than usually, rendering the FirstSpirit start page inaccessible. You can avoid these problems by:

- making sure that the application server is active during the update, i.e. neigher shut down before nor during the update, until all FirstSpirit web applications are updated.

- deleting the application engine's webapps directory (e.g. `~Tomcat/webapps` or `~firstspirit/data/modules/FirstSpirit Jetty Server.JettyService/ webapps`).

Application servers, where the update is not automated with WAR files, are not affected; an update should not cause problems.

Note: the root of the problems has been eliminated with version 2018-06. But since older webapps are not fixed yet, the problems described here can still occur during the update process.

56.49 New Configuration Opportunity for Timeouts in LDAP Sections and for Login to the Root Web Application (fs-server.conf) 5.2R20

The FirstSpirit server allows creation of several LDAP configurations (so-called "sections", see *FirstSpirit Server configuration / Configuration files (FirstSpirit Server) / FirstSpirit Server (fs-server.conf) / LDAP* (→*Documentation for Administrators*)). Each section contains at least one entry for an LDAP server which provisions LDAP data.

If a server fails or takes too long to answer (>30 seconds), timeouts may arise:

- timeout during login to the root web application

- timeout of the LDAP connection

The time span after which a timeout occurs may now be increased via the parameters `web.login.timeout` and `LDAP.TIMEOUT` (default value: `30`).

Configuration of timeout for login to the root web application:

```
# login timeout in seconds for web authentication
web.login.timeout=30
```

Configuration of LDAP timeout:

```
// connect and read timeout in seconds
LDAP.TIMEOUT=30
```

56.50 New MBeans 5.2R15

Java Management Extensions (JMX) provide a standardized interface for the management of Java applications. Using the JMX console, it is possible to monitor and manage a FirstSpirit server. While FirstSpirit ServerMonitoring is primarily used for manual monitoring of a FirstSpirit server, the JMX interface is used for automatic monitoring and can integrate into existing, enterprise-wide monitoring infrastructures. All values and operations are provided by Managed Beans ("MBeans").

The current FirstSpirit version provides new MBeans:

- `ConnectionPool`

- `License`

- `ProjectManager`

- `ScheduleManager`

- `SessionCounter`

For more information see also help texts in the tool (JVisualVM or JConsole.)

56.51 New FirstSpirit Launcher   `2018-08`

Up until now, the only way to start and update ("roll out") FirstSpirit SiteArchitect and ServerManager was

- By using **Java Web Start** technology or

- By using the **FirstSpirit Launcher**

To be able to use Java Web Start, Java (a Java Runtime Environment (JRE)) has to be installed on the FirstSpirit editor's workstation and Java Web Start has to be activated in the browser.
Due to the repeated discovery of security gaps in many Oracle Java versions, high administration and maintenance overheads due to the regular requirement for updates, and incompatibilities with software components in other Java versions running on workstations, FirstSpirit has for some time offered the FirstSpirit Launcher as an alternative for starting FirstSpirit SiteArchitect and ServerManager. See also *FirstSpirit Manual for Administrators*, "FirstSpirit start page / Areas of the start page / FirstSpirit Launcher" and the FirstSpirit installation instructions, "FirstSpirit Launcher" chapter.
The previous version of the FirstSpirit Launcher was only available for Windows systems, however, and was not capable of updating automatically. With the latest release, a new version of the Launcher is now available, which is based on different technology, supports the use of macOS, and in principle can run on Linux too. That said, due to the numerous different distributions that exist, the functionality of the FirstSpirit Launcher under Linux cannot be guaranteed. Therefore, the Launcher is not officially supported for Linux platforms ("unsupported"). The new version also supports a fully automatic update (of both the Launcher itself and the JRE). When the Launcher is used, the version of it available on the corresponding FirstSpirit Server is determined and an update is started if the version on the Server is later. What's more, the new Launcher offers a tray application that gives the user a convenient overview of the FirstSpirit Java applications that are currently active and that have been used recently:
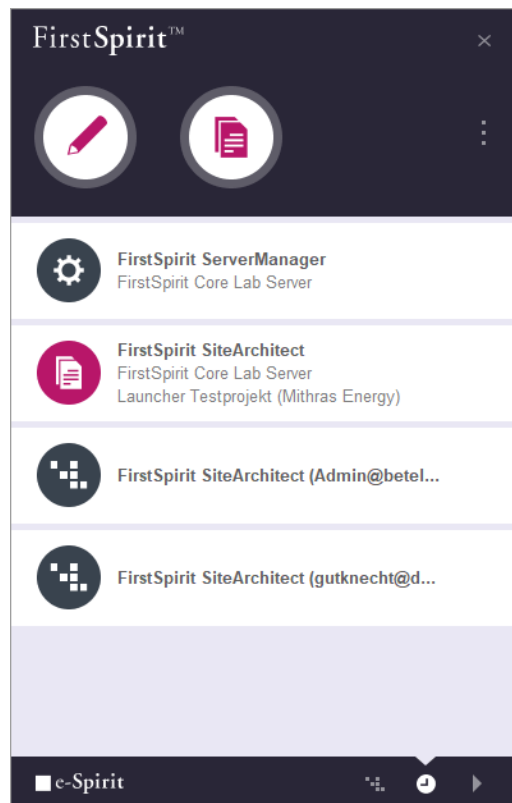
The new version of the Launcher is currently in "EAP" state (early access program).

The Java Web Start functionality is currently still included in Oracle Java 8 and 10, but will not appear in Oracle Java 11 (18.9). OpenJDK does not offer a comparable technology. For these reasons, the FirstSpirit Launcher that is currently being used will be removed in Q4 2018. In most cases it is possible to switch to the new Launcher without having to modify the configuration.

Prerequisites

To use the FirstSpirit Launcher on a local workstation, users need write and execution permissions in the following directories:

```
C:\Users\{username}\AppData\Local\Programs\FSLauncher
C:\Users\{username}\.firstspirit\FSLauncher
```

The Launcher and any log files from installation procedures and Launcher updates are located under *~\AppData\Local\Programs\FSLauncher*.

Resources for starting FirstSpirit SiteArchitect and ServerManager (*fs-client.jar*, the JRE, and Launcher-specific data) and the Launcher log files are located under *~\firstspirit\FSLauncher*.

If the user does not have the corresponding permissions, an exception will be thrown and it will not be possible to use the FirstSpirit Launcher.

If files in these directories are deleted manually, they will be rolled out again or created by the Launcher the next time the client is started.

Download and installation

The new FirstSpirit Launcher must first be installed on the workstation of the user who is to use it – regardless of whether the Launcher has previously been installed / used in earlier versions of FirstSpirit. This can be done

1. For a local workstation only or

2. For multiple client workstations in a group

In both cases, the Launcher is installed with the installation file `FSLauncherSetup.exe`. This file can be downloaded via the FirstSpirit start page ("Download FirstSpirit Launcher" link). For more information, see the *FirstSpirit installation instructions*, Chapter 4.2.4.2 "Installation".

1) Installation of the Launcher locally on the workstation

How to install the new FirstSpirit Launcher on a local workstation is described in Chapter 4.2.4.2 "Installation" of the *FirstSpirit installation instructions*.

2) Group-based installation of the Launcher on multiple workstations (GPO)

Group-based installation for multiple workstations is no longer performed using an MSI Installer, as was previously the case, but can be distributed to the required client workstations in an organization using the silent mode of the `FSLauncherSetup.exe` installer via a software distribution method anchored in the organization (e.g., an Active Directory group policy) ("unattended installation"). The Launcher is installed automatically in the `FSLauncherSetup.exe` directory by entering a call in the

```
FSLauncher.exe -q
```

command line, without the client user having to make any further entries.

The required installation folder can be transferred using the `-dir` parameter as an option (in this case with the default value):

```
FSLauncher.exe -q -dir %LOCALAPPDATA%\Programs\FSLauncher
```

Distribution scenarios that have already been set up for the "old" FirstSpirit Launcher via MSI must be adapted accordingly.

The `externalLauncherGroup` parameter in the *fs-server.conf* configuration file is used to change the connection settings for one or more external groups (e.g., from LDAP) so that SiteArchitect and ServerManager are started via the FirstSpirit Launcher instead of via Java Web Start (current default setting). This involves specifying the relevant group name. All the members of this external group then start the applications via the FirstSpirit Launcher. See also *FirstSpirit Manual for Administrators*, "Configuration of the FirstSpirit Server / Configuration files (FirstSpirit Server) / FirstSpirit Server (fs-server.conf) / Server", section "externalLauncherGroup".
Exemplary definition of an external group from LDAP:

```
externalLauncherGroup=CN=fs-dev,OU=FIRSTspirit,OU=Projekte,DC=e-spirit,DC=de
```

If the FirstSpirit Launcher from an earlier FirstSpirit release has been used previously on the local workstation, the new version of the Launcher will be used automatically following successful installation. The "old" Launcher will no longer be taken into account and the associated files can be removed from the file directory manually, e.g., using a suitable uninstallation routine.

Firewall / reverse proxy
If FirstSpirit is operated with SSO and firewall / reverse proxy, FirstSpirit must still be notified of the names of the session cookies used for authentication. The parameter `clientCookieNames` in configuration file `fs-server.conf` is used for this purpose (see also *FirstSpirit Documentation for Administrators*, "Configuration of the FirstSpirit Server / Configuration files (FirstSpirit Server) / FirstSpirit Server (fs-server.conf) / Communication" chapter). Only then can Launcher-specific connections (e.g., for downloading resources and connecting SiteArchitect or ServerManager to the FirstSpirit Server) run in the context of the existing browser connection, without having to execute another authentication process at the reverse proxy / firewall.
There are just a few scenarios in which the required session cookies cannot be passed to the FirstSpirit Server and are instead intercepted by the reverse proxy / firewall. If SiteArchitect or ServerManager will not start in such cases, the `~/fs5root/jnlp/` directory must be released in the firewall. This release is not a security issue, as the Launcher only downloads resources from this directory, no other communication takes place over this path. What's more, access is secured via random paths which are only available temporarily for the respective user session. The `~/fs5root/servlet` area (which is protected by the FirstSpirit security filter) also needs to be released in the firewall for client-server communication over HTTP/HTTPs in such instances.

Compatibility / upgrade and downgrade compatibility

From FirstSpirit 2018-08, only the new version of the Launcher will be available to download via the FirstSpirit start page.

However, a FirstSpirit Server running with a FirstSpirit version 2018-08 and higher will in principle be able to operate with a Launcher from FirstSpirit 2018-07 or earlier. Similarly, vice versa: A FirstSpirit Server running with a FirstSpirit version 2018-07 or earlier can be operated with a Launcher from FirstSpirit 2018-08 and higher. When using a Launcher from FirstSpirit version 2018-08 or higher and subsequently installing a Launcher from FirstSpirit version 2018-07 or earlier (downgrade), the older version of the Launcher might no longer function if the JRE has been swapped manually.

This is because while Launcher versions before 2018-08 expect a specific directory structure with regard to the Java archive (*jre-win.zip*), this is no longer necessary with FirstSpirit 2018-08 and higher.

If the FirstSpirit Launcher from an earlier FirstSpirit release has been used previously on the local workstation, the new version of the Launcher will be used automatically following successful installation. The old Launcher and its associated files will no longer be taken into account and can therefore be uninstalled.

Existing firewall configurations in which the "old" FirstSpirit Launcher has previously worked will remain functional and do not usually need to be changed when using the "new" Launcher.

For more information, see also *FirstSpirit Manual for Administrators*, "FirstSpirit start page / Areas of the start page / FirstSpirit Launcher".

56.52 Optimization in Schedule Management 5.2R18

During the following actions, the associated project is temporarily deactivated:

- Switching the repository backend ("FirstSpirit ServerManager / Project properties / Repository / Backend")

- Installing an archive ("FirstSpirit ServerManager / Project / Archive / Install archive")

As of the current version of FirstSpirit, schedule tasks configured in such a project will no longer be deactivated (Schedule management / option "active") as the project is temporarily deactivated. Schedule tasks that are currently running will be aborted (status "aborted") when one of the actions listed above is started; the action will only be executed once schedule task has been ended.

56.53 Optimizations related to use of the FirstSpirit Launcher 5.2R3

FirstSpirit version 5.2R3 features several optimizations related to use of the FirstSpirit Launcher:

Use of the FirstSpirit Launcher is now possible via HTTPS. The entire client-server communication, including download of JAR and JRE files, can be encrypted.
Restriction of using the FirstSpirit Launcher via SSL: SSL certificates can currently (as of January 2016) not be validated while downloading the JRE and JAR files from a FirstSpirit server. However, validation of SSL certificates is planned for a future release.

Furthermore, security related to the use of authentication cookies has been improved. In order to successfully use the Launcher, the required cookies (see parameter `clientCookieNames` in the configuration file `fs-server.conf`) must be configured with an adequate lifespan. See also *FirstSpirit Manual for Administrators*, chapter "Area: Communication".

Roll-out via MSI: Installation of the Launcher on a single workstation (until FirstSpirit version 5.2R2, inclusively: "Install Launcher as user") may still be performed via the FirstSpirit start page (from FirstSpirit version 5.2R3 onwards: "Install Launcher").
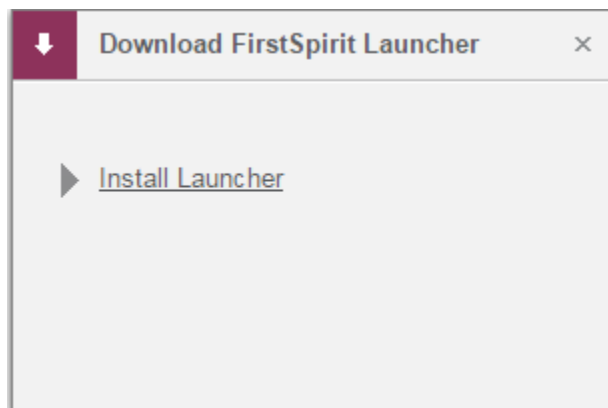
Installation for multiple workstations (until FirstSpirit version 5.2R2, inclusively: Install Launcher as administrator) requires execution of the file `FSLauncherSetup.msi`, available in `~FirstSpirit5\web\fs5root\clientjar`. See also *FirstSpirit Installation Instructions*, chapter "Distribution of MSI packages with a GPO".

For improved clarity and due to permissions, the Launcher now consistently uses one directory to store files.

For further information, see

- *FirstSpirit Installation Instructions*, chapter "FirstSpirit Launcher (new in V5.2)"

- *FirstSpirit Manual for Administrators*, chapter "FirstSpirit Launcher"

- *FirstSpirit Manual for Administrators*, chapter "Area: Communication"

56.54 Reduce project exports by excluding pre-calculated image resolutions `5.2R2`

The export function ("FirstSpirit ServerManager / Project / Export") or the "Execute project backup" schedule entry ("FirstSpirit ServerManager / Project / Schedule management") can be used to create a compressed file of FirstSpirit projects so that these can then be transferred to another FirstSpirit Server, for example.

Resolutions that have been defined for a project can be automatically calculated by the system and saved on the server side. This method speeds up generation times. (Generating large numbers of media in many different resolutions is very time-intensive. With FirstSpirit version 5.2R2, these automatically calculated image resolutions can now be excluded from the export. To enable this, the "Export automatically calculated image resolutions" checkbox must be unchecked.
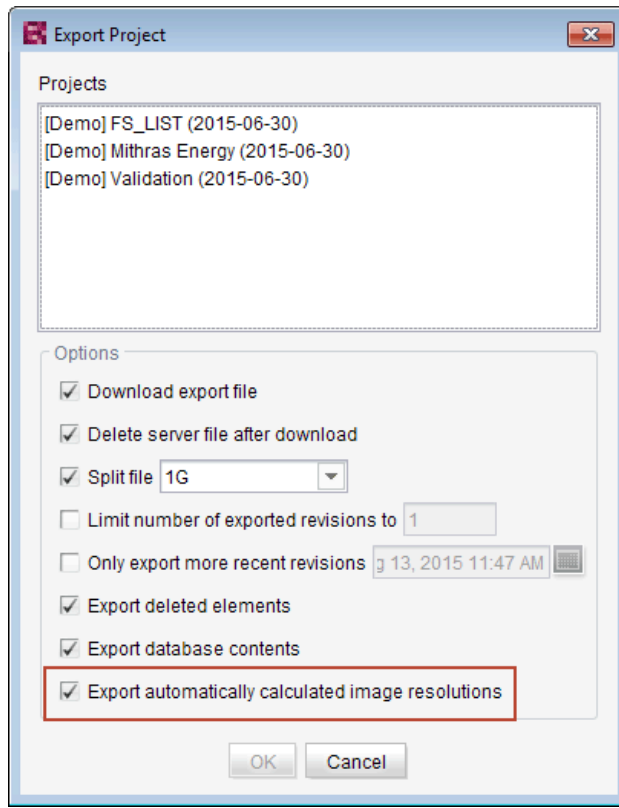
In this case, the content of the server-side image cache (`MEDIA_STORE_CACHED_PICTURES`) is not exported.
This checkbox is not selected by default.

For more information, see *FirstSpirit Manual for Administrators*, chapter

- "Export"

- "Resolutions"

- "Execute project backup"

The process of exporting automatically calculated image resolutions can also be controlled via the FirstSpirit Access API using the `setExportCachedPictures(final boolean exportCachedPictures)` method in the `ExportParameters` interface.

56.55 Project archiving: Abort archival due to insufficient available storage space 5.2R15

FirstSpirit uses repositories to archive and maintain version histories of project data. Each project has a repository in the server directory `data\projects\`. For each action carried out in the project, data is written to the repository. This applies to actions that create new elements as well as actions that delete elements. In addition, deleted elements are not removed from the repository. Since new data is always being added, the repository will continue to grow and will always require more hard disk space.

The schedule action "Archive old project states" is used to carry out archival of the selected project so that data which is no longer required is moved out of the project and into a repository, thereby reducing load times and increasing the performance of the FirstSpirit server. Data is moved from the repositories to archive files. Archive files that are no longer required can subsequently be deleted in order to free up hard disk space.

During archival, the available storage space of the volume in which the repository directory is located will now be monitored. If the available storage space falls below the following thresholds, the archival run will be aborted:

- option `hdd.limit` (configuration file `fs-server.conf`)

- the available storage space is less than half of what was available at the time archival was started

If archival is aborted due to these conditions, the following message will be written to the server log:

```
repository iteration interrupted, file system usage limit reached - lastId=[ID]
```

The log entry mentions the ID of the last archived element of this archival run. When the archival schedule task is started again, archival will continue from this point.

For further information about project archiving, see *FirstSpirit Manual for Administrators*, Chapter

- "FirstSpirit ServerManager / Project archiving"

- "FirstSpirit ServerManager / Schedule entry planning / Project-based actions / Archive old project states"

56.56 Importing a project with missing presentation channel 5.2R13

If a project with a template set ("ServerManager / Project properties / Template sets") is imported to a FirstSpirit Server for which there is no presentation channel ("ServerManager / Server properties / Presentation channels") on the server, this is now logged with the following error:

```
Error: Unable to map channel for template set 'html', channel 5 not found
```

In order to use the project, it must be activated in the ServerManager after importing via the "Project / Reactivate" function, and the desired template set (available on the server) must be selected under "Project properties / Template sets".

56.57 Refactoring of the file fs-webapp.xml (web server "Jetty") 5.2R12

The file `fs-webapp.xml` in the sub-directory "conf" of the FirstSpirit server contains configuration settings for the internal web server "Jetty". Due to refactoring measures, entries were removed from this file. This change only affects new installations. For existing FirstSpirit installations, this change may be carried out manually by the FirstSpirit administrator if so desired.

The following lines may be removed from the file `fs-webapp.xml`:

```
<!-- FirstSpirit Web Applications -->
 <!-- =========================== -->
 <New class="de.espirit.firstspirit.server.jetty.
 JettyManagerImpl$FailSafeWebAppContext">
 <Arg><Ref refid="Contexts"/></Arg>
 <Arg><SystemProperty name="WEBAPP_ROOT_PATH"/></Arg>
 <Arg><SystemProperty name="WEBAPP_ROOT_URL"/></Arg>
 </New>
 <New class="de.espirit.firstspirit.server.jetty.
 JettyManagerImpl$FailSafeWebAppContext">
 <Arg><Ref refid="Contexts"/></Arg>
 <Arg><SystemProperty name="WEBAPP_WEBMON_PATH"/></Arg>
 <Arg><SystemProperty name="WEBAPP_WEBMON_URL"/></Arg>
 </New>
 <New class="de.espirit.firstspirit.server.jetty.
 JettyManagerImpl$FailSafeWebAppContext">
 <Arg><Ref refid="Contexts"/></Arg>
 <Arg><SystemProperty name="WEBAPP_WEBEDIT5_PATH"/></Arg>
 <Arg><SystemProperty name="WEBAPP_WEBEDIT5_URL"/></Arg>
 </New>
 <New class="de.espirit.firstspirit.server.jetty.
 JettyManagerImpl$FailSafeWebAppContext">
 <Arg><Ref refid="Contexts"/></Arg>
 <Arg><SystemProperty name="WEBAPP_STAGING_PATH"/></Arg>
 <Arg><SystemProperty name="WEBAPP_STAGING_URL"/></Arg>
 </New>
 <New class="de.espirit.firstspirit.server.jetty.
 JettyManagerImpl$FailSafeWebAppContext">
 <Arg><Ref refid="Contexts"/></Arg>
 <Arg><SystemProperty name="WEBAPP_PREVIEW_PATH"/></Arg>
 <Arg><SystemProperty name="WEBAPP_PREVIEW_URL"/></Arg>
 </New>
```

! The integrated web server Jetty is not fit for use in production scenarios and should only be used for testing.

56.58 Server updates using "pull" method 5.2R5

Only a current FirstSpirit version can ensure that all FirstSpirit functionality will be available and that the software will run as well and as reliably as possible. We therefore recommend updating existing FirstSpirit servers regularly and timely. FirstSpirit offers several update methods.
From FirstSpirit version 5.2R5 onward, it is no longer possible to perform updates via Linux package systems. Instead, FirstSpirit now offers uniform, platform-neutral update management for all FirstSpirit servers.

Updating to a newer software version **via locally available files** may be performed using FirstSpirit ServerMonitoring, via "FirstSpirit – Control – Update" or "FirstSpirit – Control – Network" ("Push").

There, you can now also perform an update **via the update service** (web interface to e-Spirit, "Pull"). The file(s) required for the update is/are downloaded via web interface and then installed. When updating via this update service, various FirstSpirit software versions are available, indicating version line as well as release status:
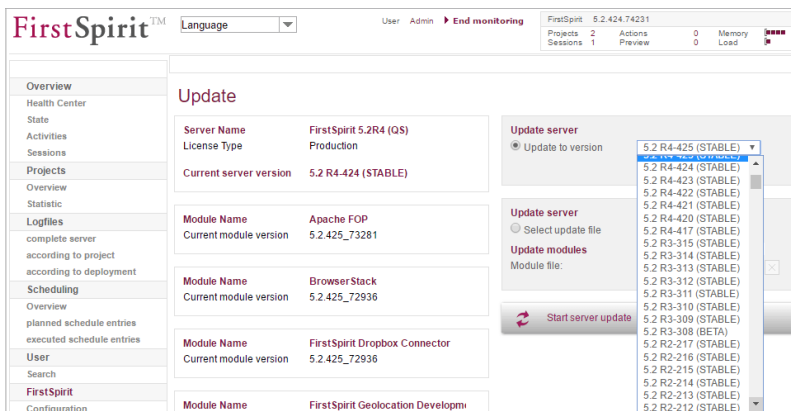
This functionality is only available if the FirstSpirit server was started using the Java wrapper.

For further information, see

- *FirstSpirit Manual for Administrators*,
  - Chapter "Updating the FirstSpirit Server"

- *FirstSpirit Installation Instructions*,
  - Chapter "Update"

56.59 Server Update: File name change for backup copies of files `5.2R6`

An update of a FirstSpirit server to a newer software version can be started via FirstSpirit ServerMonitoring (e.g. "FirstSpirit / Control / Update"). During the update process, the file `fs-server.jar` which contains the new FirstSpirit version will be copied to `~\server\lib\`. The old `fs-server.jar` file will be kept as a backup copy in the same directory. The file name of this backup copy will be formed by appending the current date and the suffix `.old`. Additionally, from the current FirstSpirit version onwards, the original file name `fs-server.jar` will be changed to `fs-server_jar`. Example for the file name of an `fs-server.jar` backup copy:

```
fs-server_jar_20160921_155039.old
```

In previous FirstSpirit versions, the file name would have been formed as follows:

```
fs-server.jar_20160921_155039.old
```

For further information about server updates via FirstSpirit ServerMonitoring, see *FirstSpirit Manual for Administrators*, chapter "Updating the FirstSpirit Server".

56.60 Server update: Improved schedule logging `5.2R6`

It is also possible to update the FirstSpirit Server using a schedule designed for this purpose (FirstSpirit ServerManager, menu "Server / Properties / Schedule management", action "Server update").

To improve traceability, logging is now carried out with the current FirstSpirit version if a more recent version of FirstSpirit is not available for update purposes (this takes place in the applicable *fs-schedule.*.log* schedule log file and in the *fs-server.log* file). For example:

```
INFO 20.10.2016 09:30:00.113 (de.espirit.firstspirit.server.scheduler.update.Server
UpdateTaskExecutor): FirstSpirit server is up-to-date, no newer version available
```

If there is a new FirstSpirit version available for update purposes, logging is carried out with the current server version and the version to which the FirstSpirit Server is updated.

For more information, see *FirstSpirit Manual for Administrators*, Chapter "Updating the FirstSpirit Server", specifically the "Automatic update via the update service" section.

56.61 SMTP Authentication 5.2R3

FirstSpirit version 5.2R3 enables sending e-mails via SMTP using authenticated connections. Authentication is configured in the configuration file `fs-server.conf`:

`mail.smtp.login`: This parameter specifies the user name used to authenticate against the SMTP server. The user configured here must be known by the specified SMTP server. Additionally, this user's valid password must be configured using the parameter `mail.smtp.password` (see below).

`mail.smtp.password`: This parameter specifies the password of the user (`mail.smtp.login`) used to authenticate against the SMTP server.

If both parameters (`mail.smtp.login` and `mail.smtp.password`) are configured, mail submission by FirstSpirit will use authenticated connections. If these parameters are not specified, authenticated connections will not be used.

The Java interface "Javamail" provides further parameters and configuration opportunities for mail submission (e.g. configuration of encryption). These parameters may be configured in the file `fs-server.conf`, prefixed with `javamail`, e.g.:

```
javamail.mail.smtp.starttls.enable=true
javamail.mail.smtp.starttls.required=true
# enable SASL to support CRAM-MD5 authentication
javamail.mail.smtp.sasl.enable=true
```

For further information, see

- *FirstSpirit Manual for Administrators*, chapter "Area: Mail"

- Javamail API

56.62 SSL Encryption: Modifications to "fs-server.conf" 2019-02

For security reasons, the TLS Cipher Suite, which has been intended by FirstSpirit as a standard for internal communications until now, is no longer supported by Java 8u201, 8u202, 11.0.2, and higher.

In existing FirstSpirit installations, if the associated parameter `fs.ssl.cipherSuites` in the file `fs-server.conf` is still set to the value `TLS_DH_anon_WITH_AES_128_CBC_SHA`, this parameter must be removed manually or its value must be adjusted, otherwise FirstSpirit SiteArchitect and web applications may no longer be able to start. To ensure secure encryption, the first step is to install a trustworthy certificate (via a certificate store) and then configure the `DEFAULT` value at this point. See also *FirstSpirit Manual for Administrators*, "FirstSpirit Server configuration / Configuration files (FirstSpirit Server) / FirstSpirit Server (fs-server.conf) / SSL Parameters".

FirstSpirit-side, the default value of the parameter `fs.ssl.protocols` was updated from `TLSv1` to `TLSv1.2` in this context. For future-proofing, this parameter's value should be adjusted manually in the file `fs-server.conf` in existing FirstSpirit installations if its value is still set to `TLSv1`.

56.63 Start-up process: FirstSpirit server starts up independently of web application updates 5.2R6

Previously, problems could arise during start-up of a FirstSpirit server if the update of a web application took an inordinately long time. Furthermore, the start-up process of a FirstSpirit server was considered to be finished only once the web applications were updated.

As of the current FirstSpirit version, the start-up process is considered to be finished **before** web application updates are performed. This implies that communication with the FirstSpirit server via API is already possible before web applications are up-to-date.

For further information about FirstSpirit web applications, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit web application configuration".

56.64 Starting process: Improved stability when accessing FirstSpirit web applications on external web servers 5.2R6

Using an external web server (for example Apache Tomcat) could led to problems concerning starting the FirstSpirit web applications on the external web server (for example FirstSpirit start page, ContentCreator etc.) because of varying start speed and / or start order of these servers.
Starting with the current FirstSpirit version, the external web server (for example Apache Tomcat) waits up to 5 minutes for a connection to the FirstSpirit server now. The FirstSpirit server can be started within this time interval. The external web server checks every 10 seconds if a connection can be established

to the FirstSpirit server. When a connection can be established the FirstSpirit web applications connect automatically to the server.

Thus, for ensuring a frictionless start of external web server, FirstSpirit server and FirstSpirit web applications you should start the external web server always first and the FirstSpirit server afterwards. Moreover, this allows that the FirstSpirit server will be able to install updates of web applications, if necessary, in any case because the external web server has already been started at this time.

For more information about using external web servers with FirstSpirit please see *FirstSpirit Manual for Administrators*, chapter "Integration into an external web server".

56.65 Adjustment of the Technical Datasheet 2018-12

As an Enterprise Content Management System, FirstSpirit is designed for use in complex IT landscapes and supports a multitude of operating systems, Java run-time environments, and databases. In order to guarantee high software quality and to ensure that FirstSpirit operates reliably in all supported configurations, regular testing is undertaken as part of the quality assurance process. The high number of supported third-party components, short release cycles, as well as combination and configuration possibilities of third-party components lead to an extremely high test complexity.

For increased planning certainty on the side of customers and partners, the "FirstSpirit Technical data sheet" lists all operating systems, Java environments, application servers, etc. as well as the specific version of each which are supported for operations with FirstSpirit. Third-party components which are being tested internally and proactively on a regular basis are categorized as **Actively supported**. Furthermore, a recommended system configuration which is also in use internally by e-Spirit is called **Reference**. As a rule, many other configurations and components are also compatible with FirstSpirit, but this cannot be ensured with regular, internal testing due to the test complexity described above. System configurations, for example, which are/were put into operation successfully by a customer or a partner or older system configurations which are no longer being tested regularly by e-Spirit thus receive the categorization **Passively supported** at this time. Should issues arise in such configurations, e-Spirit can undertake troubleshooting measures on the basis of submitted issue reports (given a current software maintenance contract), but only in a limited time frame - this does not constitute entitlement, however. Only in the case of software configurations which are categorized as **Not supported**, e-Spirit will take no measures to resolve issues which may arise.

Due to increasing test complexity and the continuously broadening testing arena, e-Spirit plans to more strongly consider third-party components and combinations which cover as large as possible market segments in its selection in the future. Besides system configurations which are successfully put into

operation by customers, planning is also to include forward-looking software and hardware trends. The goal is to test the newest version of a given third-party component for operation with FirstSpirit in order to officially approve it as quickly as possible.

In the near future, the "FirstSpirit Technical data sheet" will be revised in order to better reflect the developments described above. With the current release, this focus is already partially reflected, and the status of individual operating systems has been adjusted.

56.66 Renaming Projects With Remote Connection 2018-09

When a so-called "remote project" is renamed ("FirstSpirit ServerManager / Projekteigenschaften / Projekt", Feld "Name"), a dialog will be displayed when confirming with "OK". This dialog includes a list of target projects which use the project name in their respective remote configurations:
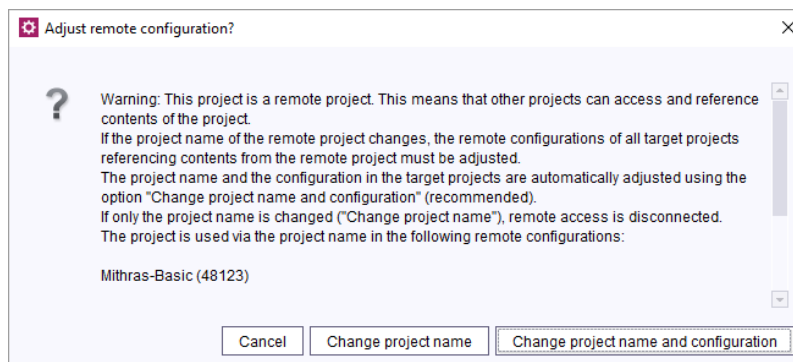
Cancel: The project name of the remote project will not be changed.

Change project name: The project name of the remote project will be changed. No changes will be made to the remote configurations of the affected target projects; remote access will be disabled.
A manual change in the remote configuration of the affected target projects can restore this connection.

Change project name and configuration: The project name of the remote project will be changed. In the remote configurations of the affected target projects, the project name will be changed as well, ensuring that remote access remains active.

> **!** If the remote connection of a target project cannot be changed, e.g. because the target project is being edited by another user at the time or the user attempting to carry out this change doesn't have the necessary permissions in the target project, an error message indicating this will be displayed.

For further information on remote projects please refer to *FirstSpirit Manual for Administrators*, Chapter "FirstSpirit ServerManager / Project properties / Remote projects".

56.67 Security improvements in FirstSpirit ServerMonitoring and web applications 5.2R2

Implemented measures to improve security in FirstSpirit ServerMonitoring as well as in FirstSpirit web applications.

56.68 Improvements of the FirstSpirit Launcher 2018-09

Several Aspects of the FirstSpirit Launcher have been improved:

- The current version of the launcher is displayed within the loading splash screen and can additionally be viewed via the option "About FirstSpirit Launcher" in the tray application.

- The auto update is now aborted if the user has insufficient permissions in the installation folder. The event is logged, and the administrator has to perform the update if desired.

- Several small bugs have been fixed.

56.69 Encryption of passwords in FirstSpirit configuration files 5.2R16

Passwords in FirstSpirit configuration files can now be encrypted.

For further information, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit Server configuration / Configuration files (FirstSpirit Server) / FirstSpirit Server (fs-server.conf) / Password encryption".

Note about downgrade ability: Passwords which have been encrypted with this new functionality cannot be used with FirstSpirit versions lower than 5.2R16. If a downgrade should be performed, the

passwords must be decrypted prior to the downgrade. If the configuration references a key file, it must be present on the FirstSpirit server.

56.70 Usage of the "InternalJetty" web server 2018-10

If one or more web applications are configured to run on the "InternalJetty" of a FirstSpirit server, the start page of the FirstSpirit server will show a warning to users with the administrator role:

```
Internal Jetty usage detected:...
```

56.71 Using preview applications in the ContentCreator (TPP) 5.2R16

If an external web application is to be used for the preview in FirstSpirit (a Single Page Application, "SPA", for example), the respective URL can be entered into the "External Preview URL" text field in the FirstSpirit ServerManager under "Project / Properties / ContentCreator settings":
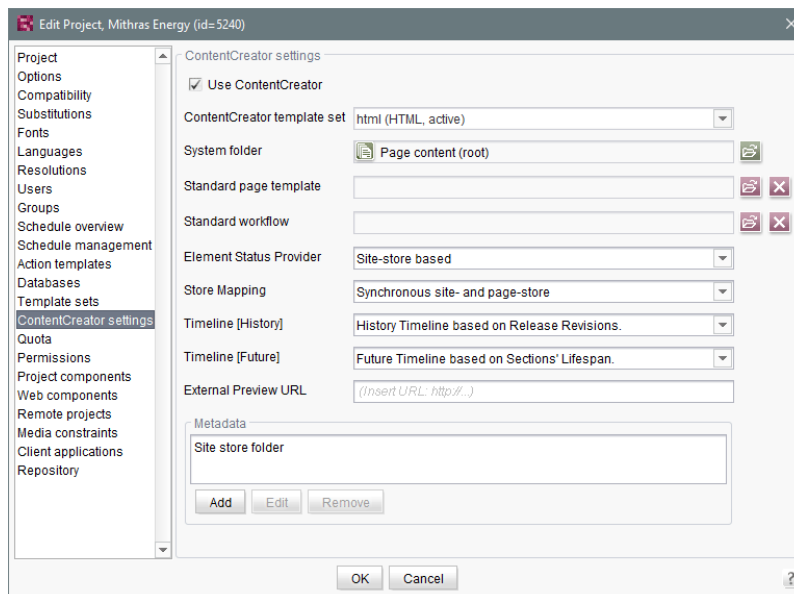
The preview application can then be used in the ContentCreator. If the linked application has been suitably prepared, the editor can still edit, create, and delete the contents displayed in the preview area with the functions of the ContentCreator. Relevant application examples are described in the CaaS documentation.

Please make sure that the URL specified here contains the protocol of the external web application. If the text field is empty ("Insert URL: http://..."), the internal ContentCreator preview function is used as before.

The URL can be read and also set by API (`getWebeditPreviewUrl` or `setWebeditPreviewUrl` method, `Project` interface, `de.espirit.firstspirit.access.project` package, FirstSpirit Access API).

56.72 Expired license warning 5.2R2

A license is required to operate a FirstSpirit Server. This can be found in the form of a file with the name `fs-license.conf` and it contains information including the temporal validity of the license (`license.EXPDATE` parameter). A warning e-mail may be sent before or after the expiration date.

Previously, an e-mail was always sent to a configured e-mail address as well as to e-Spirit. With FirstSpirit version 5.2R2, only one e-mail is now sent if an e-mail address is configured via the `LICENSE_EXPIRATION_MAIL_ADDRESS` parameter in the `fs-server.conf` file. E-mails are no longer sent to e-Spirit automatically.

For more information, see *FirstSpirit Manual for Administrators*, chapter "Area: Misc".
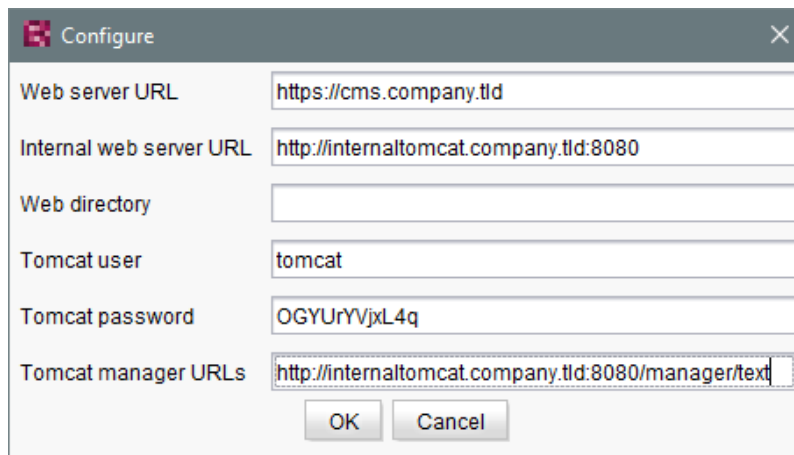
56.73 Updating web applications on external web servers 5.2R7

FirstSpirit may be operated with external web servers (e.g. Apache Tomcat), for example in order to use special server-side implementations such as PHP or ASP.

During each start-up phase, the FirstSpirit server checks if the version of each web application rolled out to an external web server is up-to-date. If this is not the case, the FirstSpirit server updates the web application. Generally, the check if a web application is up-to-date is possible with the previous web server configuration (via the "Web server URL", see illustration below). In some cases, however, this check is not possible via this URL, such that the web applications would be updated during each start-up phase of the FirstSpirit server. In these cases, from the current FirstSpirit version onwards, the internal web server URL of the web server may be configured for each web server (ServerManager / Server properties / area "Web server", field "Internal web server URL").
E.g. for the type "Tomcat":

Notes: The URL will only be used if the web directory is not set (field "Web directory"). The field "Internal web server URL" is not evaluated for web servers of the type "External" at the moment.

In this context, a method `getInternalURL` has been added to the interface `WebServer` (FirstSpirit Developer API, package `de.espirit.firstspirit.module`). This method provides the URL that is set for a web server in the field "Internal web server URL".

For further information about use and configuration of web servers, see *FirstSpirit Manual for Administrators*:

- "Web server configuration (fs-webapp.xml)"

- "Integration into an external web server"

- "Web server"

56.74 Web server "Jetty" is now system module 5.2R20

The module `fs-jetty.fsm` (currently in the Early Access Program ("EAP")) which will replace the earlier implementation "InternalJetty", is now available as system module. This means that it exists on newly installed FirstSpirit servers as well as on existing FirstSpirit servers when they are updated to FirstSpirit version 5.2R20. The module needs no more to be installed manually.
This module bases on the most recent version: 9.4. However, this version is not compatible with Java 7 and requires at least Java 8.

The functions of the integrated Jetty server ("InternalJetty") were deprecated / discontinued with FirstSpirit version 5.2R18, and are scheduled to cease existing at all in August 2018 (FirstSpirit version 5.2R24). In the meantime, the currently integrated Jetty functions as well as Jetty as a module will be available in parallel with one another. During this period, it will be possible to test out the module and convert the operation of existing FirstSpirit installations that use Jetty to the Jetty module.

> **!** Both the earlier implementation "InternalJetty" and the new implementation as a module run within the same JavaVM as the FirstSpirit server. This configuration is not suitable for production operation and should only be used for tests. For more complex configuration requirements (e.g. adjustment of memory size, timeouts, number of threads per deployed application, …), use of an external web server (e.g. Tomcat) is recommended.

In order to use Jetty as a module, the corresponding service "JettyService" has to be started in the server properties of the ServerManager:
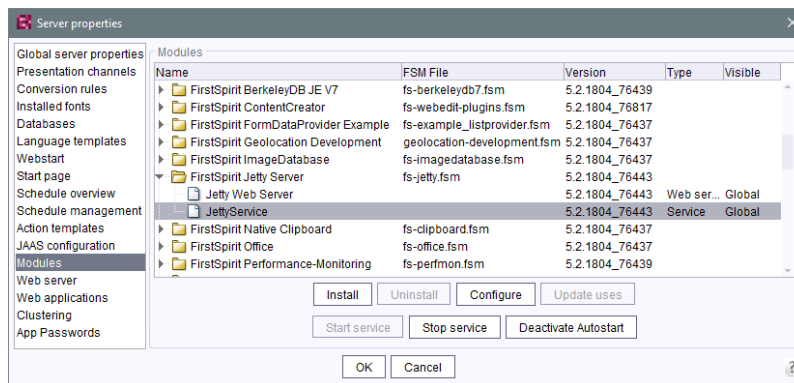
Here it is also possible to configure the favored port. (Changing this configuration requires a restart of the service "JettyService"):
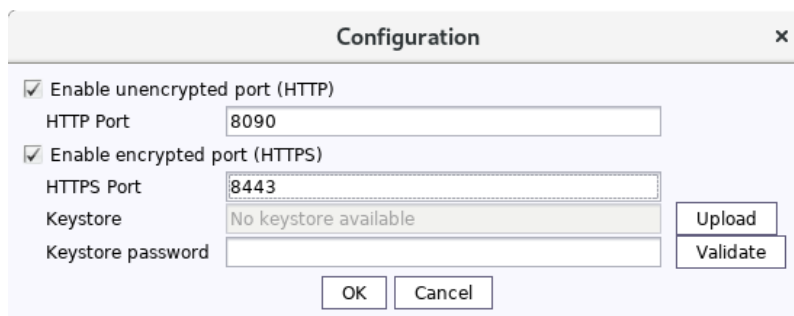
Creating encrypted connections (HTTPS) requires a keystore in JKS format. This can be uploaded using the button "Upload".

After uploading the keystore and entering the corresponding password, a click on the button "Validate" checks the entered configuration. When successful, the number of detected aliases is displayed:
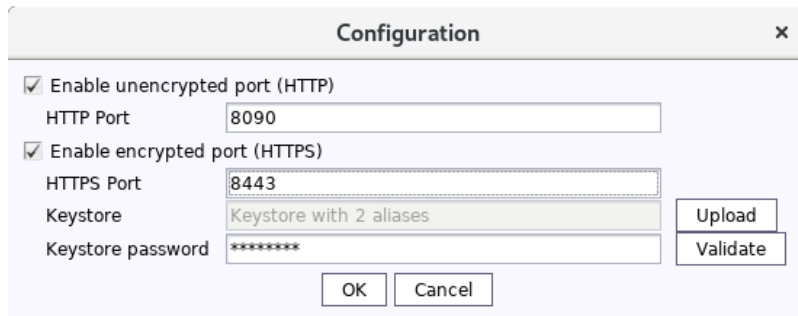
Configuration is completed with "OK".

A new web server of the type "Jetty Web Server" may be added using "Webserver" in the server properties (e.g. with the name "IsolatedJetty"):
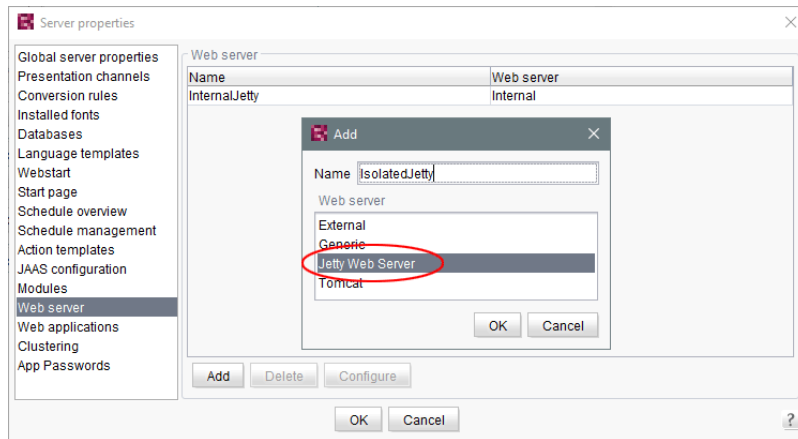
The web server may now be selected in the project properties under "Web components":
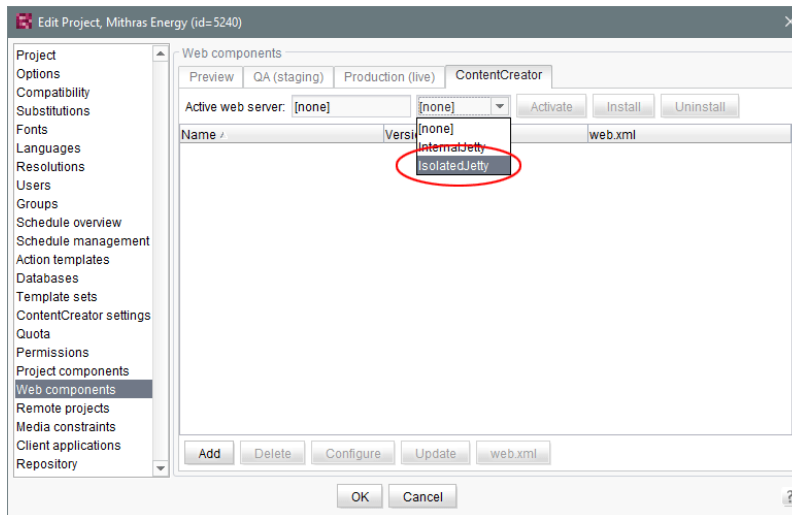
56.75 Web server Apache Tomcat: Automatic update of web applications

5.2R6

Apache Tomcat may be used as an external web server with FirstSpirit, operating either on the same host that runs FirstSpirit or on a dedicated host ("stand-alone" / "remote").

Until now, if a stand-alone Tomcat was used, web applications installed on that Tomcat had to be updated manually upon each FirstSpirit update, e.g. via the buttons "Force update", "Install" / "Activate" or "Update", respectively, in FirstSpirit ServerManager, "Server properties / Web applications"
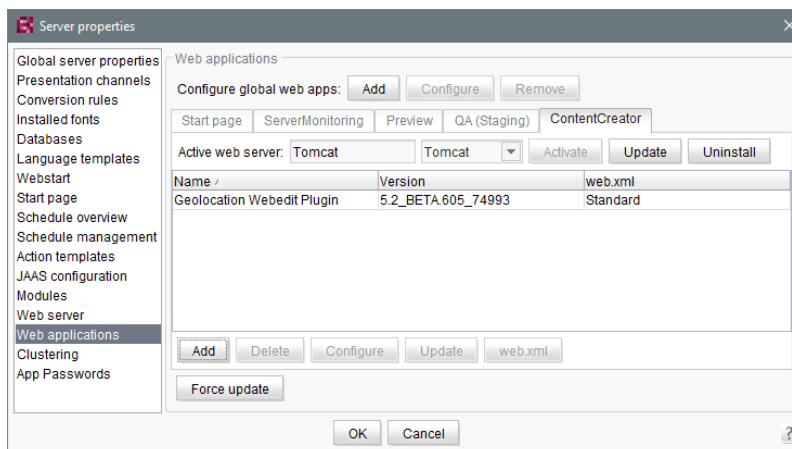
or in "Project properties / Web components"
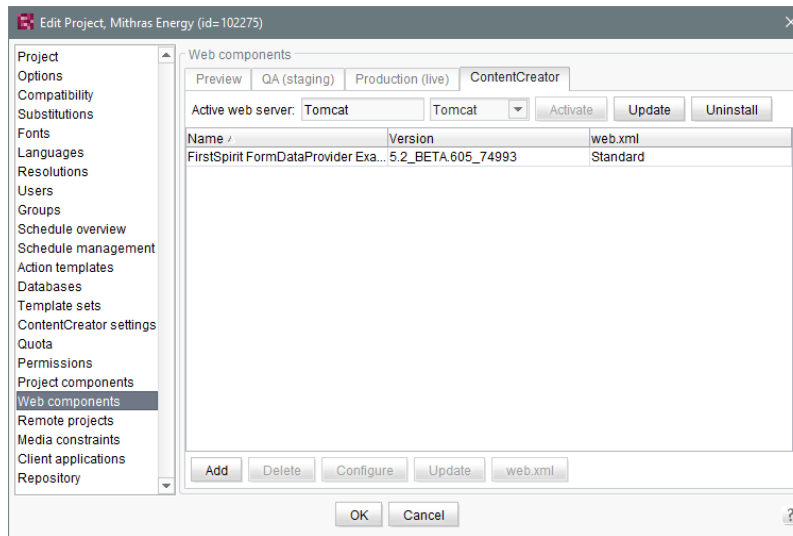
As of the current version of FirstSpirit, the FirstSpirit server will recognize if web applications on a Tomcat are not up-to-date and will trigger an update.

For further information, see *FirstSpirit Manual for Administrators*, chapters

- "Tomcat servlet engine on a dedicated host"

- "Web server"

- "Web applications"

- "Web components"

56.76 Web server configuration: web servers will now be activated automatically 2018-09

In previous versions of FirstSpirit, after installing web applications or web components, web servers had to be activated explicitly in order for them to be used. As of the current FirstSpirit release, web servers will now be activated automatically.

The associated button "Activate" in FirstSpirit ServerManager ("Server properties / Web applications" and "Project properties / Web components") has been removed.

56.77 Web server configuration: new FirstSpirit installations use the web server "FirstSpirit Jetty Server" 2018-09

Since FirstSpirit 2018-08, the functionality of the integrated Jetty "InternalJetty" is no longer supported. The web server "FirstSpirit Jetty Server" can be used instead (see also Chapter "Migrating from the InternalJetty to a web server for productive use").

New installations (FirstSpirit servers that are installed with FirstSpirit 2018-09 or higher) use the web server "FirstSpirit Jetty Server" as standard starting with the current FirstSpirit Release. The dependent service "JettyService" is started automatically with the start of the FirstSpirit server:
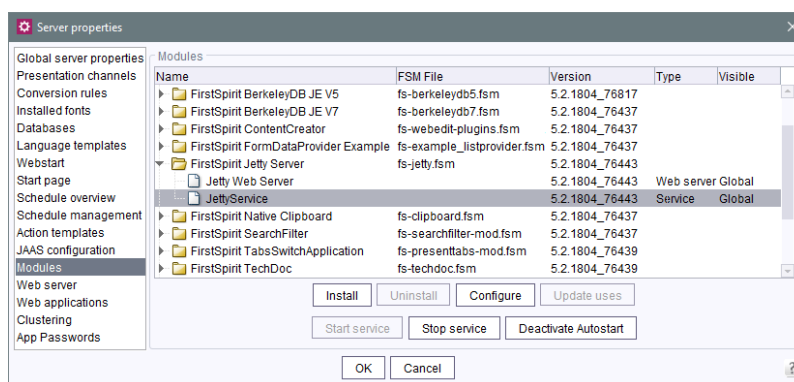
This web server is used automatically for the FirstSpirit web applications.

Unlike in previous FirstSpirit versions, the default value of the INTERNAL_SERVLET_ENGINE parameter in the configuration file fs-server.conf is for new installations now *0*. This value should not be modified, it can be omitted in subsequent versions of FirstSpirit.

For further information please refer to *FirstSpirit Manual for Administrators*, Chapter "FirstSpirit ServerManager / Server properties / Web server", "Jetty Web Server" paragraph.

56.78 Further optimizations to "BerkeleyUtil" 5.2R21

The following optimizations have been made to the "BerkeleyUtil" (BerkeleyUtil.jar) conversion tool in the latest FirstSpirit version:

Log file

The conversion actions are now logged in a log file as standard. The log file name is berkeley_util_yyyyMMdd_HHmmss.log; for example:

```
berkeley_util_20180502_113208.log
```

If you convert an entire FirstSpirit Server, the file is stored in the *log* directory of the server. If you convert individual databases, the file is stored in the directory which was specified as the start directory (`PATH` parameter).

The creation of this log file can be deactivated with the `--no-log-file` option.

Calculating the amount of hard disk space that is likely to be required

While converting the Berkeley databases of a FirstSpirit Server using the tool, you may temporarily require three times the memory space of the largest database that is being converted.The latest FirstSpirit version now checks to see if there is sufficient free hard disk space before converting each database. If this is not the case, the conversion will **not** be executed. The conversion for this database then stops with an `Insufficient free space` error message. If this happens, create more space or remove files from the directory before starting a new conversion.

Note: In very rare cases, the conversion tool is unable to calculate the required storage space reliably. If the available disk space is too low, the conversion terminates with the following error message: `Error converting BerkeleyDB`. If this happens, please contact Technical Support.

In order to help calculate the conversion time with more accuracy, a list of the individual databases by type and size as well as a summary of the amount of data to be converted is now added when the `-l` or `--list` parameter (`Disk space usage:...`) is used.

For example:

```
02.05.2018 11:26:05.504 [INFO BdbScanner] Scanning BerkeleyDBs in: firstspirit
02.05.2018 11:26:33.044 [INFO BdbList] V7 Repository: firstspirit/data/projects/
   project_221354/repository/bdb7 - 2,56 MB + 16,95 MB BLOBs
...
02.05.2018 11:26:33.053 [INFO BdbList] V5 Repository: firstspirit/data/projects/
   project_287731/repository/bdb5 - 16,77 MB + 2,32 MB BLOBs
...
02.05.2018 11:26:33.062 [INFO BdbList] V7 Registry: firstspirit/data/projects/
   project_221582/registry - 6,92 KB
...
02.05.2018 11:26:33.073 [INFO BdbList] V7 Registry: firstspirit/data/registry
    - 23,11 MB
02.05.2018 11:26:33.073 [INFO BdbList] V7 ArchiveDB: firstspirit/archive/
   project_221354/db2 - 17,55 KB
...
02.05.2018 11:26:33.076 [INFO BdbList] V7 AccessControlDB: firstspirit/data/schedule/
   225219/acl - 1,69 MB
...
02.05.2018 11:26:33.079 [INFO BdbList] Disk space usage:
02.05.2018 11:26:33.080 [INFO BdbList] V5 Repository - 55,26 MB + 68,61 MB BLOBs
02.05.2018 11:26:33.080 [INFO BdbList] V7 Repository - 28,9 GB + 7,74 GB BLOBs
02.05.2018 11:26:33.081 [INFO BdbList] V7 Registry - 169,51 MB
02.05.2018 11:26:33.081 [INFO BdbList] V7 ArchiveDB - 848,59 MB
02.05.2018 11:26:33.081 [INFO BdbList] V7 AccessControlDB - 35,67 MB
02.05.2018 11:26:33.082 [INFO BdbList] Total - 29,98 GB + 7,81 GB BLOBs
```

Examples of conversion times

Large FirstSpirit Server:

- More than 100 projects

- FirstSpirit installation directory > 1 TB, of which > 500 GB in Berkeley DB directories (without "blob" directories)

- With a very large project ("bdb" directory > 250 GB)

Conversion time with 20 GB of main memory: < 12 hours
Conversion time with 4 GB of main memory: > 24 hours

Medium-sized FirstSpirit Server:

- 27 projects

- FirstSpirit installation directory < 1 TB, of which > 250 GB in Berkeley DB directories (without "blob" directories)

- With a large project ("bdb" directory > 50 GB)

Conversion time with 4 GB of main memory: < 6 hours

Medium-sized FirstSpirit Server:

- 27 projects

- FirstSpirit installation directory > 100 GB, of which > 50 GB in Berkeley DB directories (without "blob" directories)

- "bdb" directory of the largest project approximately 25 GB

Conversion time with 20 GB of main memory: < 2 hours
Fast conversion of the same server: > 8 minutes

The information above distinguishes between the "bdb" directories and the "blob" directories of the FirstSpirit Server because they are handled differently:
If there is a project in Berkeley version 5, the "blob" directory will not be changed during the conversion. If there is a project in Berkeley version 3, the files in the "blob" directory will be moved into new subfolders, but this will not affect the duration of the conversion.
Unless the `-f` option has been enabled, however, the contents of the "bdb" directories are exported to new files and then imported into a newly created database.

Note: The values shown here are only comparison values, as FirstSpirit installations differ greatly from customer to customer. The duration of a FirstSpirit Server conversion is highly dependent on the number and size of projects as well as on the specific way in which the customer is using the system.

Note: On Unix systems, the `BerkeleyUtil.jar` conversion should be executed by the user who will then be using the Berkeley databases. In practice, this means the user who is the administrator for the FirstSpirit Server or the Application Server.

56.79 Forwarding of HTTP Header Information to an External Preview URL

5.2R3

FirstSpirit version 5.2R3 introduces the parameter `preview.externalDeliveryForwardHttpHeaders` which may be specified in the file `fs-server.conf`. This parameter accepts a comma-separated list which contains the names of HTTP header fields which should be forwarded to the external web server specified by the parameter `preview.externalDeliveryURL`. Evaluation of this parameter is case-insensitive.

Possible values:

- Parameter is specified with an empty value
  No header fields and cookies are forwarded to the external web server.

- `preview.externalDeliveryForwardHttpHeaders=Cookie` (Default)
  Cookies set in header fields will be forwarded to the external web server, other header fields will not be forwarded. This setting is also used if the parameter is not specified in `fs-server.conf`.

- `preview.externalDeliveryForwardHttpHeaders=*`
  All header fields will be forwarded to the external web server. (Note: If the wildcard *is contained in a comma-separated list that contains explicit mentions of HTTP header fields, the wildcard will be ignored.)

- `preview.externalDeliveryForwardHttpHeaders=f1,f2`
  The HTTP header fields named "f1" and "f2" will be forwarded to the external web server.

For further information, see *FirstSpirit Manual for Administrators*, chapters
- "Area: Preview"

- "Passing authentication cookies"

56.80 Caching of preview files 5.2R7

When a preview is requested, the previewed page may be cached such that, at a later time, further preview requests for this page may be displayed more quickly.

Multi Perspective Preview (MPP) allows previews of pages as they would look at future dates. These previews were previously also cached by default. As of the current FirstSpirit version, caching of these future previews may now be deactivated globally as needed.

Configuration of this caching behavior is carried out in the configuration file `fs-server.conf` using the new parameter `preview.enableTemporalPreviewCache`:

- `true`: Preview pages will be cached. This potentially creates many files, enabling previews for previously viewed pages to load faster. (Default value)

- `false`: Preview pages will **not** be cached. This causes all relevant files to be created anew upon a preview request. This potentially causes more load but creates fewer files in the cache directory.

Use of `true` is recommended if editors are able to request previews for pages as they would look at future dates via the MPP timeline.

Until now, due to the previous caching implementation, it was possible that previews of pages representing future states were not always up-to-date or correct. This erroneous behavior was also corrected in this context.

For further information about MPP, see

- *FirstSpirit SiteArchitect / FirstSpirit AppCenter / Integrated preview / Multi Perspective Preview* (→*Documentation FirstSpirit SiteArchitect*)

- *Template development / JavaScript APIs / Multi Perspective Preview* (→*FirstSpirit Online Documentation*)

For further information about the new parameter `preview.enableTemporalPreviewCache`, see *FirstSpirit Manual for Administrators*, chapter "Area: Preview".

57   Administration / Modules

57.1   Log in via Kerberos ticket "KerberosLoginModule") `5.2R2`

To log into FirstSpirit via the Kerberos login module (module name: `de.espirit.firstspirit.server.authentication.KerberosLoginModule`), a Kerberos ticket is accepted, which is passed from the web browser to the FirstSpirit Server.
The `sendAccepted` parameter can be used to influence the HTTP status code in the case of a handshake. If the handshake is successful, "OK" (200) is sent with FirstSpirit version 5.2R2. "ACCEPTED" (202) was sent prior to FirstSpirit version 5.2R2. Depending on the infrastructure in use, this status (202) may not be accepted as "valid", something which may cause indexing problems, for example. This default behavior has therefore been changed as of 5.2R2. It is possible to restore the old behavior by setting the parameter `sendAccepted` to the value `true` (file `fs-jaas.conf`, default value: `false`).

For more information, see

- *FirstSpirit Manual for Administrators*, chapter "Kerberos ticket (integrated Windows login)"

- Module documentation for *FirstSpirit Dynamic Personalization*, chapter "'Kerberos Login' login module"

57.2   The FirstSpirit SAML Login Module is released. `2019-02`

The FirstSpirit SAML Login Module is released with FirstSpirit 2019-02. By using the module it is possible to implement Single sign-on (SSO) via the SAML v2.0 standard in FirstSpirit. The login to the FirstSpirit server is then no longer carried out directly, but indirectly via an identity provider. The module is conceptually capable of communicating with all identity providers that support the SAML V2.0 standard. e-Spirit tested and actively maintains the use with Keycloak version 4.6.0 or higher (Keycloak Homepage).
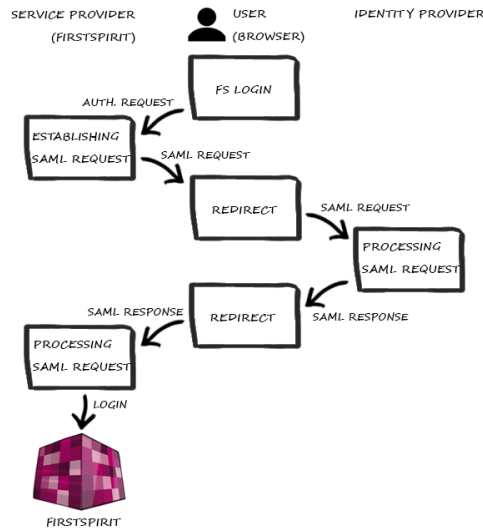
Login process when using the SAML module (simplified)

When utilizing the module, some restrictions have to be considered:
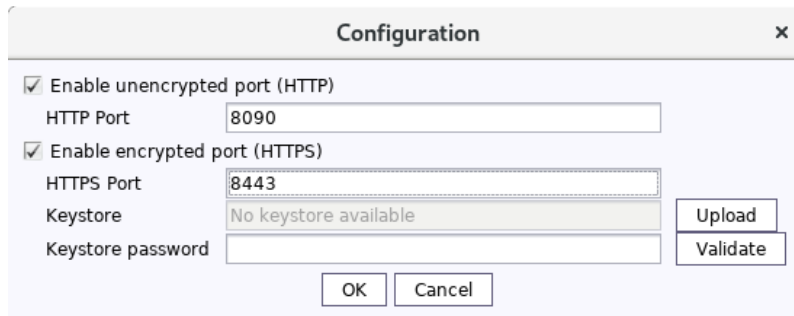
- When using the SAML login module, it must be noted that only the process of logging in is implemented. There is no communication between the module and the identity provider about a user logging out. This means that if the user logs out from the identity provider, this has no direct effect on the login to FirstSpirit. Likewise, when the user logs out of FirstSpirit, he will not be logged out of the identity provider, and the session there will not be rendered invalid.

- The used API, OneLogin's SAML Java Toolkit, provides only "Single Group/Role Attributes".

- Only one identity provider can be set up per FirstSpirit Server. It is not possible to configure different identity providers on a project basis.

57.3 HTTPS Support for the Module "Eclipse Jetty" (EAP) `5.2R19`

With FirstSpirit version 5.2R13 the new module providing the servlet container Eclipse Jetty has been introduced. Support for servers running in legacy mode was added with 5.2R18 in context of the Early Access Program. In order to ease the migration from using the internal Jetty server to using the Jetty module, the current version of FirstSpirit adds support for encrypted connections (HTTPS).

Creating encrypted connections requires a keystore in JKS format. This can be uploaded using the configuration dialog of the JettyService ("FirstSpirit ServerManager / Server Properties / Modules / FirstSpirit Jetty Server / JettyService").

After uploading the keystore and entering the corresponding password, a click on the button "Validate" checks the entered configuration. When successful, the number of detected aliases is displayed.

A restart of the JettyService is required in order to apply the new configuration.

57.4   New FirstSpirit login module with SSO via SAML 2.0 (EAP) 2018-12

The FirstSpirit SAML Login Module supports "single sign-on" authentication in FirstSpirit via SAML 2.0 standard. The module is currently in the EAP phase and has so far only been used with Keycloak version 4.6.0 or higher (Keycloak homepage).

Due to the EAP status, the module is not shipped with FirstSpirit 2018-12. If there is interest in participating in the EAP phase, please contact e-Spirit Technical Support.

58   General

58.1   Code signing certificate updated 5.2R5

The content of FirstSpirit JAR files is signed with a certificate. This procedure is also called "code signing". In the current FirstSpirit version, the content is signed with a new certificate that is valid until 2018-06-13 (13 June 2018).

Please refer also to Chapter 1 "Code signing certificates".

58.2   Code signing certificate updated 5.2R9

The content of FirstSpirit JAR files is signed with a certificate. This procedure is also called "code signing". In the current FirstSpirit version, the content is signed with a new certificate that is valid until 2019-07-24 (24 July 2019).
Some certificates used by existing FirstSpirit servers expired on 2017-05-21 (21 May 2017), affected FirstSpirit servers must be updated.

58.3   Code signing certificate updated 2018-06

The content of FirstSpirit JAR files is signed with a certificate. This procedure is also called "code signing". In the current FirstSpirit version, the content is signed with a new certificate that is valid until 22.07.2020.

58.4   Main memory requirements for FirstSpirit SiteArchitect 5.2R15

As of the current FirstSpirit version, the standard value for maximum heap size (Xmx) of FirstSpirit SiteArchitect was increased to 1024MB. Thus, FirstSpirit SiteArchitect now requires at least 1024MB of free main memory, as opposed to the previously required 768MB.

For further information, see *FirstSpirit Technical Data Sheet*.

58.5   Display of Version Information 2018-06

In the course of introducing the new release naming scheme (for more information, see the separate passage in the introduction chapter of these release notes), the display of version information in FirstSpirit has been modified and/or extended.

- **FirstSpirit Start Page:** Clicking on the version number in the footer ("Server version") will cause a dialog to open which displays information about the server (server name, FirstSpirit version, license). Clicking on "Show all details" in that window will reveal more information: Java version, operating system, web server, browser.

- **FirstSpirit SiteArchitect:** The splash screen which is displayed while FirstSpirit SiteArchitect starts as well as the dialog "Help / About FirstSpirit" have been redesigned and now show the server name, the FirstSpirit version in use, names of the user and of the current project, and the license. In the dialog "Help / About FirstSpirit", clicking on "Show all details" will reveal further information which is less relevant for editors (e.g. group memberships, Java version, operating system, etc.).

- **FirstSpirit ContentCreator:** The "About" dialog which will be shown when clicking on the FirstSpirit icon at the far left of the menu bar now primarily displays the server name, the FirstSpirit version in use, names of the user and of the current project, and the license. Clicking on "Show all details" will reveal further information which is less relevant for editors (Java version, operating system, web server, browser).

58.6 Datenbases: Support for MariaDB `5.2R12`

FirstSpirit has been designed as an enterprise content management system for application in complex IT landscapes, and supports various operating systems, Java runtime environments, and databases.

As of the current FirstSpirit version, MariaDB (cf. also to https://mariadb.org) is officially supported for use with FirstSpirit, in version 10.1. Reference version is 10.1.23.

Note: Please use the MySQL JDBC driver for MariaDB (`mysql-connector-java-x.x-bin.jar`).

For further information, see *FirstSpirit Technical Datasheet* and *FirstSpirit Server configuration / Database connection / Examples of application* ($\rightarrow$*Documentation for Administrators*).

58.7 Databases: Support for Microsoft SQL Server 2016 and data type "ntext" `5.2R10`

FirstSpirit has been designed as an enterprise content management system for application in complex IT landscapes, and supports various operating systems, Java runtime environments, and databases.

As of the current FirstSpirit version, **Microsoft SQL Server**, version **2016**, is now officially supported for use with FirstSpirit as a database server running on Windows servers.

This means that reference versions of Microsoft SQL Server are versions 2014 and 2016. Versions 2008 and 2012 are passively supported. Support for Microsoft SQL Server 2005 has ended.

For further information, see *FirstSpirit Technical Datasheet*.

Because the data type `ntext`, which is used by Microsoft SQL Server, has been marked "deprecated" by the manufacturer (see https://docs.microsoft.com/en-us/sql/t-sql/data-types/nchar-and-nvarchar-transact-sql), the column type for XML data in FirstSpirit (column type "FirstSpirit-Editor", "SiteArchitect / Database schemata / Database schema / Create column / Data type") was changed from using `ntext` to using `nvarchar(max)`. This complies with Microsoft's recommendation. This means that contents of the column type "FirstSpirit-Editor" will now be mapped to `nvarchar(max)` and no longer to `ntext`. Existing columns which use the type `ntext` are not affected by this change: in existing projects, these will continue to be mapped to `ntext`.

58.8   IDs in FirstSpirit release notes   2018-10

FirstSpirit release notes are created with FirstSpirit. Some time ago, in order to advance and optimize the agility of its software development process, e-Spirit has introduced a new tool for internal project management and tracing. This tool now also serves bug tracking purposes.

As of the current FirstSpirit release, the IDs given in the first column of the release notes' issue tables reference this new tool.

While the IDs previously were six-digit numbers, they are now four-digit numbers.

58.9   Java Wrapper (fs-wrapper.*.conf): Standard recognition of 32 and 64 bit systems has been deactivated   2018-07

JavaVMs are started in 32-bit mode by default on certain platforms. The 64-Bit-Java-VM can be activated on 64-bit systems with `-d64` parameter on the Java command line. This switchover can be made automatically with the Java Wrapper (file `fs-wrapper.conf` in the sub-directory `conf` of the FirstSpirit server) by means of the `wrapper.java.additional.auto_bits` parameter. Due to a bug in the Java Wrapper, the default value for this parameter has been changed from `true` to `false`.

For new installations with FirstSpirit 2018-07 and later that use Oracle Java 10 or higher, no modifications are necessary.

For existing FirstSpirit installations that use Oracle Java 10 or higher, the line

```
wrapper.java.additional.auto_bits=true
```

in the file `fs-wrapper.conf` and possibly as well in the files `fs-wrapper.*.conf` in the sub-directory `<FirstSpiritROOT>/conf` must be replaced by

```
wrapper.java.additional.auto_bits=false
```

Installations that use Oracle Java 8 are not affected by this error.

For more informations please see *FirstSpirit Manual for Administrators*, "FirstSpirit Server configuration / Configuration files (FirstSpirit Server) / Java VM and Wrapper (fs-wrapper.conf) / Java Wrapper Parameters".

58.10 New Technical Datasheet for FirstSpirit   2019-02

FirstSpirit is operated successfully by customers and partners with a wide range of different third-party components (operating systems, JDKs, servlet engines, application servers, databases).

The Technical Datasheet provides:

- an overview of recommended reference system configurations for operation with FirstSpirit,

- an extended list of further compatible system configurations that have been checked by e-Spirit and deemed functional, and

- under the item "Not supported" a list of system configurations that are known to cause problems or are highly likely to cause problems.

The Technical Datasheet for FirstSpirit has been revised. It is available under the chapter "Technical Requirements and Recommendations" as part of the documentation for administrators (HTML): https://docs.e-spirit.com/odfs/edocs/admi/introduction/index.html

A PDF version of the Technical Datasheet can be obtained from the start page of the FirstSpirit documentation: https://docs.e-spirit.com/odfs/documentation/technical-docum/index.html.

58.11 Query: Erroneous query results related to self-referencing M:N relations   2018-09

Queries are used to limit the number of datasets of a data source or to sort them for output. In (database) tables that had a self-referencing M:N relation (upon itself), the attributes were switched. In this case, queries returned erroneous results.
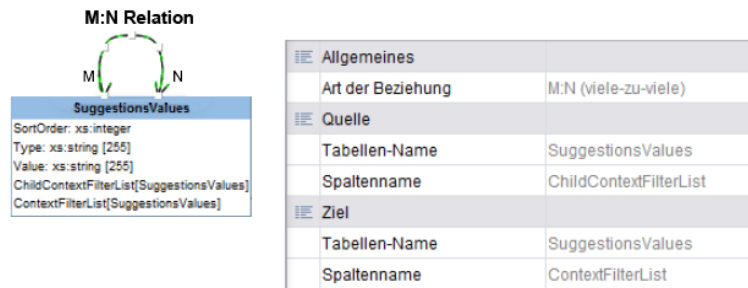
Current behavior for new database schemata: For newly-created database schemata, this error was fixed.

Current behavior for existing database schemata: For all existing database schemata, the erroneous behavior will be retained so that existing projects are not affected by any behavior change. Existing schemata can be adjusted manually to support the new behavior. For this, the version attribute in the schema's persistence ("schema.xml") must be edited. Please contact Technical Support for help in this matter. After this change, the affected queries in projects must be adjusted manually.

Workaround for existing database schemata: For existing database schemata, the erroneous behavior can be worked around by "switching" the appropriate attribute names in queries:

Switching the attribute names (workaround)

58.12 Release notes: chapter sorting 2019-02

FirstSpirit release notes are provided in German and English for

- individual releases (file name: `Releasenotes_<Release>.pdf` or `Releasenotes_<Release>_EN.pdf`)

- combined for all releases (file name: `Releasenotes_<Release>_combined.pdf` or `Releasenotes_<Release>_EN_combined.pdf`)

e.g., `Releasenotes_2019_01_EN.pdf` or `Releasenotes_2019_01_EN_combined.pdf`.

Entries in the FirstSpirit release notes are categorized in different ways to enable quick access to relevant topics:

- The **first chapters** contain descriptions of new features, generally set out according to target user group/FirstSpirit component.

- The **"Deprecations" chapter** provides a clear list of functions that are being discontinued with the date of their withdrawal.

- The **"Overview" chapter** lists the functions implemented in the current release and relevant rectified errors in table format, sorted by their ID in the internal bug tracking system and labeled with categories.

- In the release-specific editions it is possible to jump from a category to the last part of the document (**"Categories" chapter**) which lists all entries by category, also in table format.

The entries are sorted alphabetically in the current release. Furthermore, the sorting / chapter numbering of the entries in the English release notes has been aligned with the sorting of the entries in the German release notes. This means that the entries can be found under the same chapter number in both languages.

58.13 Publication of FirstSpirit Javadoc via separate Jar files 5.2R9

Javadoc is used for documenting the FirstSpirit API. Starting with the current FirstSpirit version, this documentation is published additionally in separate Jar files (`fs-api-javadoc.jar` and `fs-isolated-runtime-javadoc.jar`), for example in order to make it easier to access it from IDEs.

59 ContentCreator

59.1 "NewSectionExecutable": Support for Global Content 2018-06

In ContentCreator, the class `de.espirit.firstspirit.webedit.server.executables.NewSectionExecutable` (short: `NewSection`) may be used on pages to create sections by way of accordingly configured FS_BUTTON input components. This requires that the FS_BUTTON component is referenced by the function `fsbutton(...)` within the HTML template set of the desired page template. The parameters `page` and `body` are used to specify the page and the content area, respectively, into which the new section should be inserted.

As of the current version of FirstSpirit, `NewSection` may now be used to create sections within "Global Pages" as well.
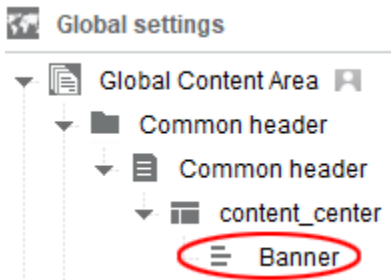
In order to achieve this, the new parameter `store` must be passed to the executable, carrying the value "globalstore".

Example code for an HTML template set in the page template of a Global Page within which new sections should be inserted:

```
<span$CMS_VALUE(fsbutton(editorName:"pt_createSection",
        parameter:{"page":#global.page.id,
                "store":"globalstore",
                "body":"content_center"}))$>
</span>
```

where "pt_createSection" is the identifier of the FS_BUTTON input component and "content_center" is the identifier of the content area.

If the parameter `store` is not specified, the Page Content store is considered as the target by default (`"store":"pagestore"`).

For further information, see *FirstSpirit Online Documentation*, "Template development / ContentCreator / Functional scope".

59.2   Workflows on media and media folder elements   5.2R7

In the report area, the report "Tasks" shows the tasks that are available to the current user. In addition to media elements, as of the current FirstSpirit version, this report also displays media folder elements that are in a workflow:
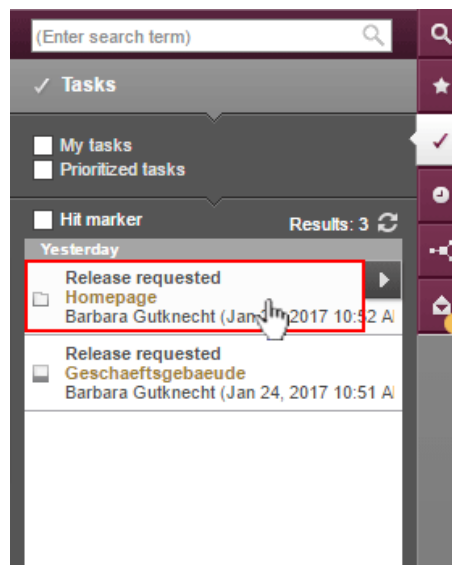
Clicking on a media folder entry will open the dialog "Manage media".

In order to advance media and media folder elements in a workflow, use the following button:

Clicking the button will open a drop-down menu that shows the available next steps in the workflow. Clicking on an entry in that menu (e.g. "check release") will open the dialog to set information for the next workflow step.

For further information, see *FirstSpirit Manual for Editors (ContentCreator)*, chapter "Report area / Tasks".

59.3   Selection dialog for next editor(s) of a workflow 5.2R4

In FirstSpirit, a workflow is always a sequence of tasks or work steps which are carried out in a given order. Each task can be assigned to a user or a group of users. The workflow controls the logical sequence of individual tasks so that only the currently appropriate task can be carried out. If a user completes one task, another user responsible for carrying out the next task is automatically notified.

In ContentCreator, workflows can be started and transitions within an active workflow can be triggered using the page status display (e.g. "Modified page", "In workflow") in the ContentCreator toolbar. In the activity dialog for this workflow, the option "Next editor" may be used to define which user or user group should be notified that the workflow has been transitioned to the next task.

To this end, the user's name may be entered directly into the "Next editor" text box, or a drop-down list showing a number of available users can be opened by simply clicking on this text box. As of FirstSpirit version 5.2R4, users may also open a larger selection dialog by either clicking on the magnifying glass icon in the text box or by clicking on the entry "Show more entries..." at the bottom of the drop-down list:
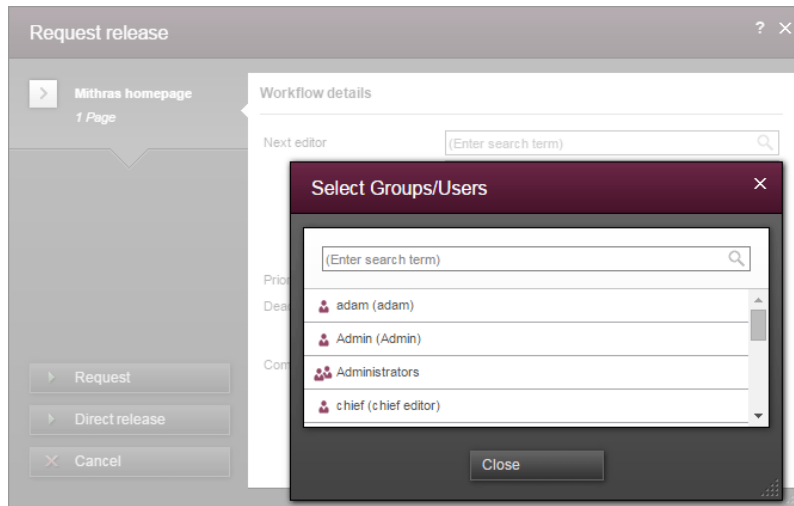
Dialog "Select Groups/Users"

This dialog lists all available users and user groups and supports search functionality. By clicking on the user or group's entry in the list, this user or group is selected, and the dialog closes automatically, adding that user or group to the "Next editor" field in the activity dialog.

For further information, see *FirstSpirit Manual for Editors (ContentCreator)*, "Report area / Tasks / Workflows".

59.4   Identification of user interface elements 5.2R7

As of the current FirstSpirit version, user interface (UI) elements in ContentCreator (e.g. menus "Contents", "Media", and "Actions"; menu entries; input components; and report parameters) are identified in HTML. This supports better identification of these elements, e.g. for UI tests.

59.5   ContentCreator: New options for editing content 2019-02

FirstSpirit 2018-12 implemented a basic functionality which allows fragments and variants from a CXT project to not only be referenced in FirstSpirit projects, but also to be edited from ContentCreator (CORE-8101).
The current release continues this development: With the new `externalReference` parameter in `editorId()` calls, external references of the relevant FS_INDEX component can now be marked for use in ContentCreator.
The parameter expects the identifier of references that are saved in the FS_INDEX component.

Example:

```
<div$CMS_VALUE(editorId(editorName:"fs_index"))$>
 $CMS_FOR(i, [0..fs_index.identifiers.size-1])$
 $CMS_SET(objectId, fs_index.identifiers[i])$
 <div$CMS_VALUE(editorId(editorName:"fs_index", externalReference: objectId))$>
 </div>
 $CMS_END_FOR$
</div>
```

In this case, *fs_index* is the identifier of the relevant FS_INDEX component.
objectId represents a fragment entry of the FS_INDEX component.

Effects in ContentCreator

As part of this new development, the EasyEdit icon bar in ContentCreator for cases where input forms allow inputs on multiple levels has also been redesigned.

In the case of multiple overlapping levels, the corresponding icon bars are grouped into a single bar. The actions for the different levels are displayed from inside (on the right in the toolbar) to outside (on the left in the icon bar).
If the mouse pointer is hovered over an icon in the icon bar, highlighting is used to visualize which level the relevant action relates to.
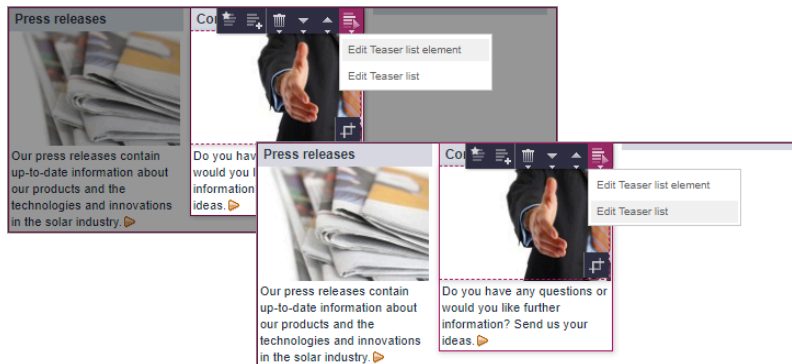
As soon as an action appears multiple times in a consolidated icon bar, the instances of the same action are grouped together and displayed as an icon with an arrow symbol. The user can click on the icon and use a popup menu to select the actual action or the level for which the action is to be performed. The relevant level is highlighted in the same way as for the individual actions.

59.6 Dynamically resizable report sidebar 5.2R8

The width of the report sidebar may be adjusted by dragging the vertical divider bar using the mouse (left-click and hold). The selected width will be preserved if the report sidebar is closed and then reopened.

59.7 Create new list items using the FS_BUTTON 5.2R2

In the input components for creating lists:

- FS_CATALOG

- FS_INDEX

- FS_LIST (DATABASE and INLINE types)

the ContentCreator in FirstSpirit version 5.2R2 can now be used to create entries in the preview at the same time as creating new sections using a direct button, icon or link, without first having to open the form, for example:

The use of this functionality requires the use of the newly implemented FS_BUTTON handler class `de.espirit.firstspirit.webedit.server.executables.NewListEntryExecutable` (abbreviation: `NewListEntry`).

Example:

```
<FS_BUTTON
    name="button"
    hidden="yes"
    icon="fs:new"
    onClick="class:NewListEntry"
    onDrop="class:NewListEntry"
    style="firstspirit"
    useLanguages="no">
    <LANGINFOS>
      <LANGINFO lang="*" label="New entry"/>
      <LANGINFO lang="DE" label="Neuer Eintrag"/>
    </LANGINFOS>
</FS_BUTTON>
```

The relevant HTML code is rendered in the HTML presentation channel inside a "$CMS_VALUE(...)$" instruction via the `fsbutton(...)` function. To do this, the input component (in this case: "st_createListEntry") must be specified via the mandatory parameter `editorName`. The input component (in this case: "st_linklist") in which the new entry is to be created must be specified via the mandatory parameter `editorId`. A further mandatory detail includes "json: true", e.g.,

```
<div$CMS_VALUE(fsbutton(
            editorName: "st_createListEntry",
            parameter: {
                "editorId": editorId(editorName:"st_linklist", json: true)
                        }
            ))$></div>
```

For more information, see *FirstSpirit Online Documentation*, chapter "Template development / ContentCreator / Functional scope", section "FS_BUTTON handler classes".

59.8   Filter in FS_REFERENCE via <SOURCES> 5.2R3

The input component FS_REFERENCE enables referencing of one element selected by a user. Selection of an element for referencing may be limited to specific stores and/or folders by using the tag `<SOURCES>`.

In rare cases, special configurations could lead to erroneous behavior in ContentCreator: in such cases, not all elements eligible for selection were displayed. This behavior was corrected in FirstSpirit version 5.2R3.

Due to this fix, it is recommended that existing uses of FS_REFERENCE configurations with a `<SOURCES>` tag be checked to ensure that element selection controls associated with FS_REFERENCE components display the desired set of elements in allowed sources and omit elements that are not in allowed sources.

For further information, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / REFERENCE"

- *FirstSpirit Manual for Editors (ContentCreator)*, "Editing the preview page / Standard input elements / Reference selection"

59.9 FS_CATALOG: New Entry Form Is Opened Immediately `5.2R19`

The input component for catalog lists (FS_CATALOG) allows creation and maintenance of content lists. The entries of such a list may be sections or links.
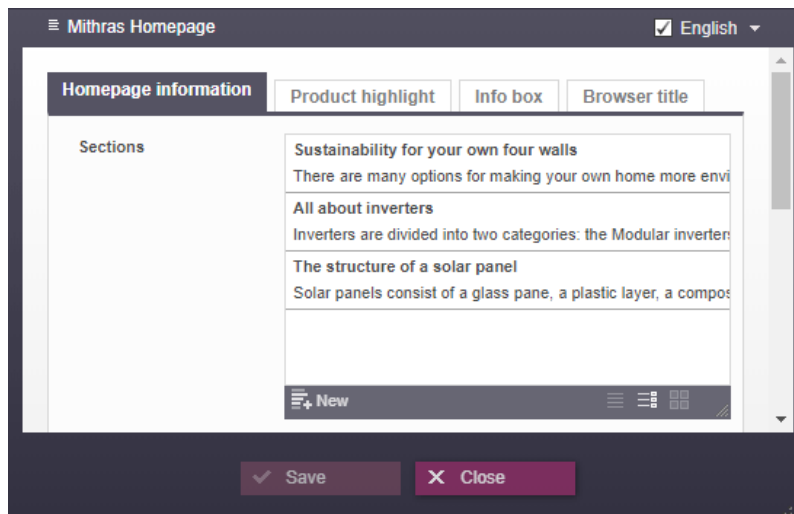
Clicking the button "New" (and selecting the desired template, if necessary)

previously only resulted in the addition of the new entry to the catalog list. Now, the form associated with the new entry is opened immediately so that the editor may directly input the desired content.

For further information, see *FirstSpirit Manual for Editors (ContentCreator)*, "Editing the preview page / Standard input elements / Catalog lists (FS_CATALOG)".

59.10 FS_INDEX: multiple selection possible in selection dialog 5.2R20

The input component for index lists (FS_INDEX) supports multiple selection of entries. Via the selection dialog, several elements can now be selected from the connected data source and added to the index list at once.
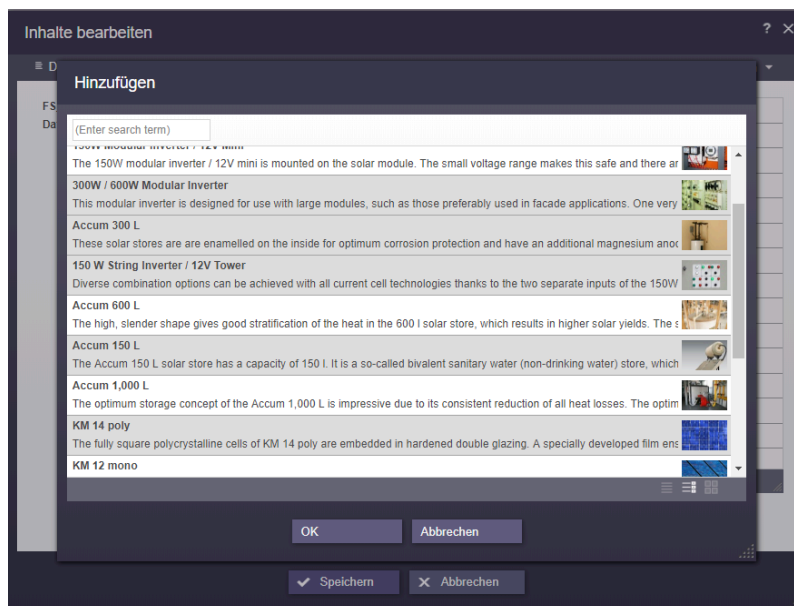
Any restrictions on the number of entries in the list component that may be defined in the template will not be considered during selection.

59.11 FS_INDEX: Language can now be changed in the internal elements 2018-07

Elements in the FS_INDEX input element (e.g., datasets) can now be edited language-dependently in edit mode in FirstSpirit ContentCreator: There is now a corresponding drop-down box in the internal form from which the required project language can be selected:
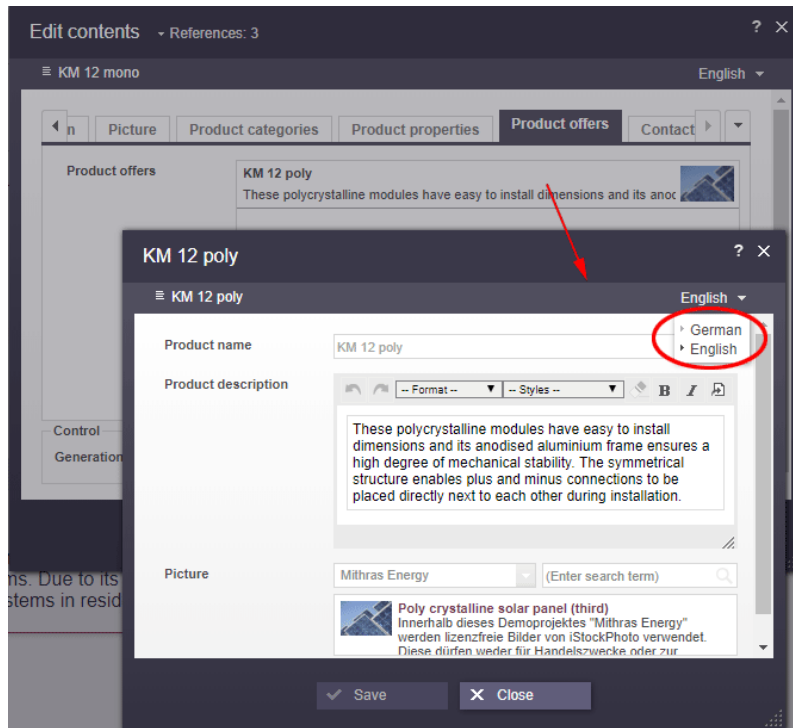
Previously, the edit window of the internal element had to be closed before you could select a different language and edit the associated content:
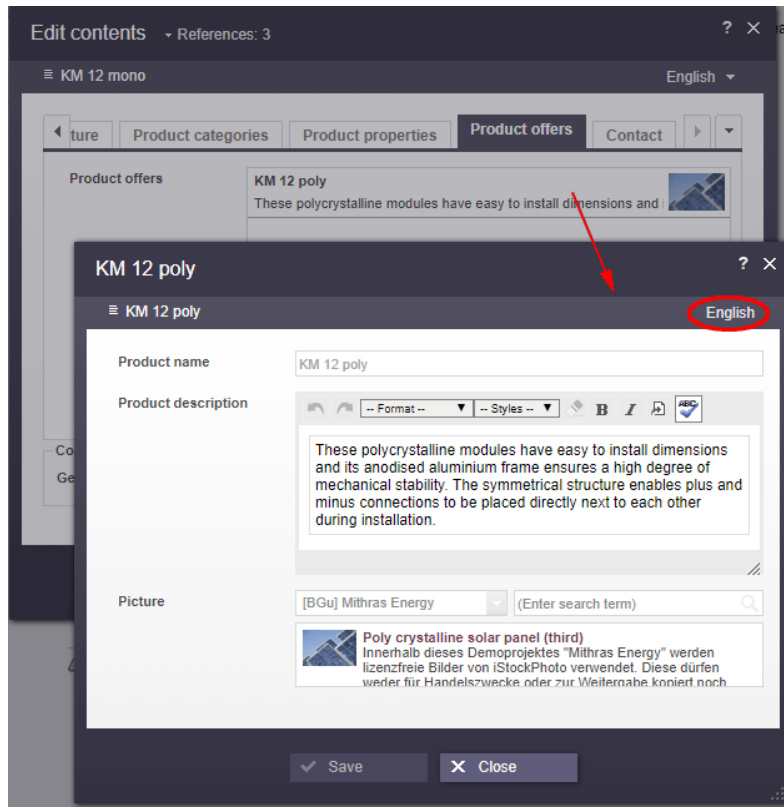
For more information about FS_INDEX, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / INDEX"

- *FirstSpirit Manual for Editors (ContentCreator)*, "Editing a preview page / Input elements / Index"

59.12 Deletion of bookmarks and master copies 5.2R7

Frequently used elements may be bookmarked in FirstSpirit to enable easy access. In ContentCreator, an element is bookmarked by using the following button in the toolbar:

Bookmarked elements are then shown in the report area.

Here, bookmarked elements may also be set as master copies so that new elements may quickly be created based on the data of such frequently used elements. A bookmark may be set as a master copy by using the following button:

For sections, this button is also available within the section's toolbar in the preview.

If an element (e.g. a section) that is bookmarked as a master copy is deleted, the current FirstSpirit version will now show a confirmation dialog with the following note:

"The element 'xyz' is a master copy, would you like to delete it anyway?"

If the user clicks OK, the section and its associated master copy bookmark in the report area will be deleted.

Furthermore, elements which are bookmarked can now be deleted without errors in all cases.

For further information, see *FirstSpirit Manual for Editors (ContentCreator)*, "Report area / Bookmarks".

59.13 Project-specific action menu `5.2R6`

As of the current FirstSpirit version, a project-specific actions menu can be offered to editors who use ContentCreator.

Configuration is carried out directly within ContentCreator, via the entry "Configure actions" in the menu. This requires project administrator privileges.
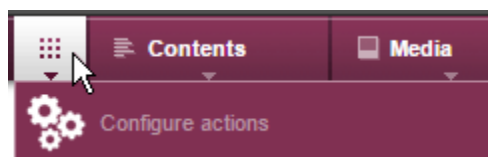
In the dialog which opens, the administrator may select the actions which should be available to all editors in this menu in this project (see also *FirstSpirit Manual for Editors (ContentCreator)*, page "ContentCreator menu functions"):

<div align="center">+ Add action</div>

The set of selectable actions includes those that are offered by plug-in components implementing the interface `de.espirit.firstspirit.webedit.plugin.WebeditToolbarActionsItemsPlugin` for the current project. The individual action items themselves are implementations of the interfaces `ExecutableToolbarActionsItem` or `ClientScriptProvidingToolbarActionsItem` (both in the package `de.espirit.firstspirit.webedit.plugin.toolbar`). The icons shown in the actions menu are specified by the implementations of the two toolbar actions item interfaces and should be sized 40x40 pixels for optimal display. If no icon is defined for an action, the first letter of the item will be used. See also *Plug-In Development / ContentCreator Extensions / Interactive Features / Toolbar Menu Items / Functional Overview* ($\rightarrow$*FirstSpirit Online Documentation*).

These buttons may be used to reorder actions. In the menu, the actions will be shown to editors in an order analogous to that in the dialog "Configure actions for all users".

Pressing this button removes the associated action from the project-specific menu. Optionally, actions can be deactivated via the list that is shown when clicking "Add action".

59.14 Deactivating rule evaluation during generation of the ContentCreator preview 2018-09

As of the current FirstSpirit release, rule evaluation can be deactivated during generation of the FirstSpirit ContentCreator preview. This can be useful if rule evaluation causes long computation times during preview generation and thus may impact ContentCreator's performance.

> **!** This functionality only affects the preview in ContentCreator; in forms in ContentCreator and in SiteArchitect, rule evaluation will continue to be carried out, and rule infractions will continue to be visualized if they are detected.

> **!** Deactivation of rule evaluation during preview generation affects the display of validation issues in ContentCreator. For further information, see the segment "Effects on the visualization of validation issues in ContentCreator".

Deactivating rule evaluation for single elements in the output channel

Deactivation of rule evaluation can be configured via the function **editorId()** in the desired output channel tab of a template using the new parameter

```
previewRulesEvaluation
```

Possible values of this parameter are:

- `true`: default value if the parameter `previewRulesEvaluation` is not set; the rules defined for this template (tab "Rules") will be evaluated and visualized without limitation.

- `false`: rule evaluation during preview generation in ContentCreator will be deactivated for the element associated with this use of `editorId`. In forms in ContentCreator and in SiteArchitect, rule evaluation and visualization of validation issues will be carried out as usual.

The value of this parameter is added to the parameter using a colon, e.g.:

```
previewRulesEvaluation:false
```

Example:

```
<div$CMS_VALUE(editorId(...))$>
    ...
    WITH VALIDATION
</div>
<div$CMS_VALUE(editorId(previewRulesEvaluation:false))$>
    ...
    NO VALIDATION
</div>
```

Explanation: For   the   element   `<div`
`$CMS_VALUE(editorId(previewRulesEvaluation:false))$>...</div>`, rule evaluation will
be deactivated while it is generated for the ContentCreator preview.

For further information about the function `editorId()`, see *FirstSpirit Online Documentation*, pages

- "Template development / Content Highlighting and EasyEdit / Use in projects"

- "Template development / Template syntax / Functions / in instructions / editorId"

Deactivating rule evaluation for larger areas in output channel generation

Using the system object `#global`, rule evaluation during preview generation in ContentCreator can
be deactivated for a larger area (e.g. a template). To this end, `#global` now includes the new
property `previewRulesEvaluation`. Analogous to the parameter of the same name in the function
`editorId()`, this property also supports the possible values `true` (default value) and `false`, e.g.:

```
$CMS_SET(#global.previewRulesEvaluation, false)$
```

Example:

```
$CMS_SET(#global.previewRulesEvaluation, false)$
<div$CMS_VALUE(editorId())$>
    NO VALIDATION
</div>
```

Explanation: Following the call `$CMS_SET(#global.previewRulesEvaluation, false)$`, rule
evaluation during preview generation in ContentCreator will be disabled for all subsequent calls to
`editorId()`.

For further information about the system object `#global`, see *FirstSpirit Online Documentation*, page "Template development / Template syntax / System objects / #global / Preview-specific".

Use of both options in combination

For a differentiating configuration within a template, both new options may be combined, e.g.:

```
$CMS_SET(#global.previewRulesEvaluation, true)$
<div$CMS_VALUE(editorId())$>
     WITH VALIDATION
</div>
<div$CMS_VALUE(editorId(previewRulesEvaluation:false))$>
     NO VALIDATION
</div>
```

oder

```
$CMS_SET(#global.previewRulesEvaluation, false)$
<div$CMS_VALUE(editorId())$>
     NO VALIDATION
</div>
<div$CMS_VALUE(editorId(previewRulesEvaluation:true))$>
     WITH VALIDATION
</div>
```

Effects on the visualization of validation issues in ContentCreator

The evaluation of rules in FirstSpirit SiteArchitect and ContentCreator is tied to a visualization: specifically in ContentCreator, rule infractions that were detected during preview generation will be shown in the page status and marked with a specific icon and highlighting in the preview (see also *FirstSpirit Online Documentation*, page "Template development / Rules / Display of a rule violation / in ContentCreator"). If rule evaluation during preview generation is deactivated by either of the means described above, any present but undetected validation issues will not be visualized in the ContentCreator page status and preview; in forms, however, rules will be evaluated regardless of output channel definition, and all present validation issues will be visualized there.

Affected visualizations:
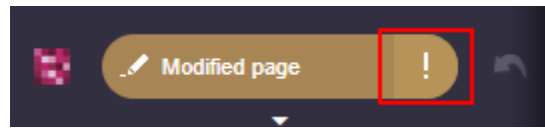
Page status

(Below the menu entry "Validation issues", only sections or the page itself are listed if validation issues for these elements are visualized in the preview.)
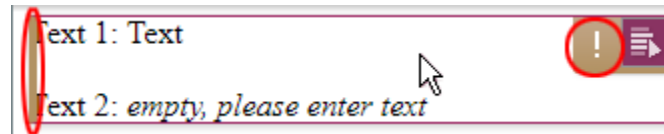
Highlighting and icon

Note: For content based on table templates (datasets), rule infractions are **never** visualized in the preview.

59.15 Stepless Resizing of the Input Component "Link-Sensitive Graphic" (CMS_INPUT_IMAGEMAP) 5.2R3

Using the input component "Link-Sensitive Graphic" (CMS_INPUT_IMAGEMAP), link areas may be placed over a background image.

Starting with FirstSpirit version 5.2R3, the height of this input component may be adjusted by dragging the resize handle in the lower right corner of the input component.
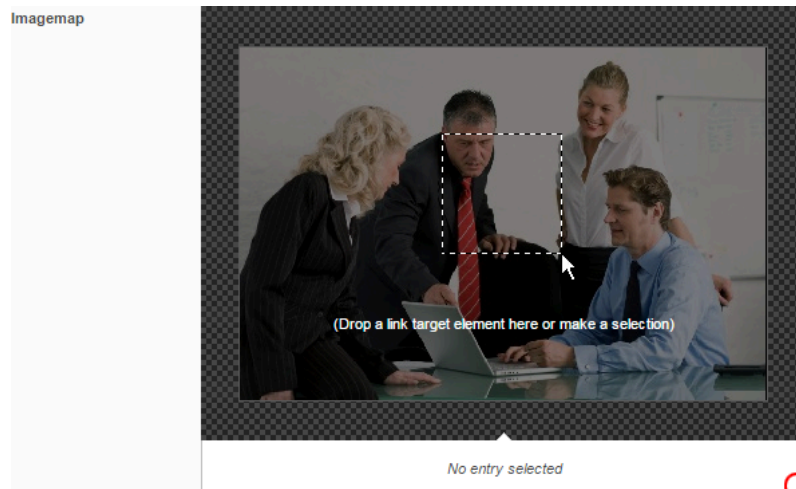
The minimum height of this input component is 340 pixels.

For further information, see

- *FirstSpirit Manual for Editors (ContentCreator)*, "Editing a preview page / Input elements / Imagemap",

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / IMAGEMAP"

59.16 Improved performance when displaying datasets in input components 5.2R4

The input component CMS_INPUT_LIST allows selection of values which have been defined by project developers. When used in conjunction with CMS_INCLUDE_OPTIONS, database content can be displayed within the input component, e.g.

```
<CMS_INPUT_LIST name="IDENTIFIER">
  <CMS_INCLUDE_OPTIONS type="database">
    <LABELS>
      <LABEL lang="*">#item.COLUMN</LABEL>
    </LABELS>
    <TABLE>NAME_OF_TABLE_TEMPLATE</TABLE>
  </CMS_INCLUDE_OPTIONS>
  <LANGINFOS>
    <LANGINFO lang="*" label="Dataset selection"/>
  </LANGINFOS>
</CMS_INPUT_LIST>
```

In ContentCreator forms, depending on the browser, display of such an input component which references a data source that contains many datasets may be slow. As of FirstSpirit 5.2R4, the display is thus limited to 100 entries. If more than 100 datasets are available, the following message will be shown in the form: "The list of available entries has been truncated due to browser limitiations. This input component is not suitable for lists of this size." Please note that rules will only be applied to the entries displayed in the form.

It is recommended to use FS_INDEX (with an implementation of DataAccessPlugin) instead of CMS_INPUT_LIST.

For further information about CMS_INPUT_LIST, CMS_INCLUDE_OPTIONS, and FS_INDEX, see *FirstSpirit Online Documentation*,

- "Template development / Forms / Input components / INDEX"

- "Template development / Forms / Input components / LIST"

- "Template development / Forms / Data elements / OPTIONS / DATABASE"

59.17 Move sections into other content areas 5.2R2

If sections in ContentCreator could previously only be moved within the same content area, then it is now possible to also move them beyond content area boundaries.

Prerequisite: The section template for the section being moved must be approved for the content area it is being moved to.

For more information

- on working with sections in ContentCreator, see the *FirstSpirit Manual for Editors (ContentCreator)*, "Editing a preview page / Sections"

- on defining allowed section templates for a content area, see the *FirstSpirit Online Documentation*, "Templates (Basics) / Composition of templates / Page templates / Properties tab"

59.18 Visualization of frequently used objects 5.2R2

The ability to reuse content in content management systems ensures significant time and cost savings, reduces errors, and thereby increases the overall quality of the website. With this in mind, it is also possible to use a variety of objects such as images, sections, pages, and datasets several times in FirstSpirit; in other words, this content may appear in several places on the site. This means that changes to an object that are made on a preview page may affect other pages too.

With FirstSpirit version 5.2R2, the editor can now see – at various points of the editing process – that the object currently being edited is used on other pages (the same as the "Show usages" context menu function in SiteArchitect) so that changes may also be made there. An example of this can be found when editing media in a reference selection input element ("FS_REFERENCE"):
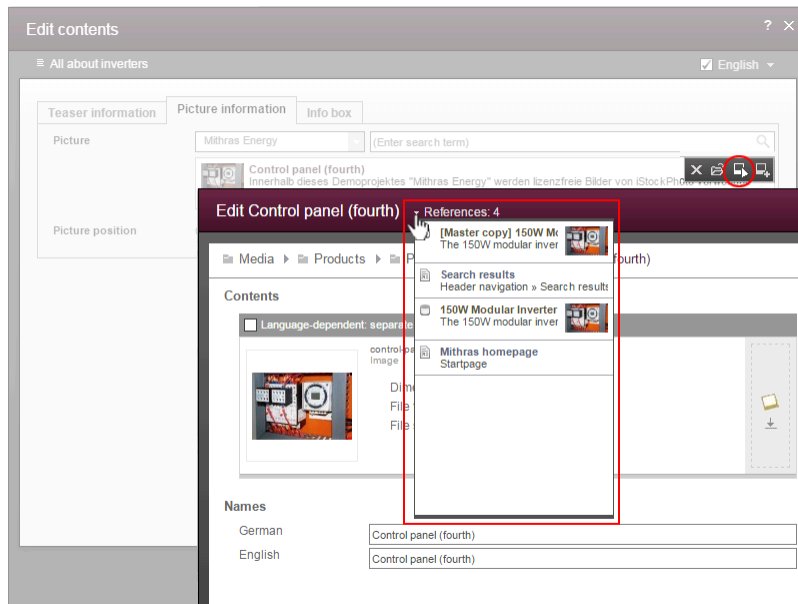
It can also be seen in a dialog for editing a dataset:
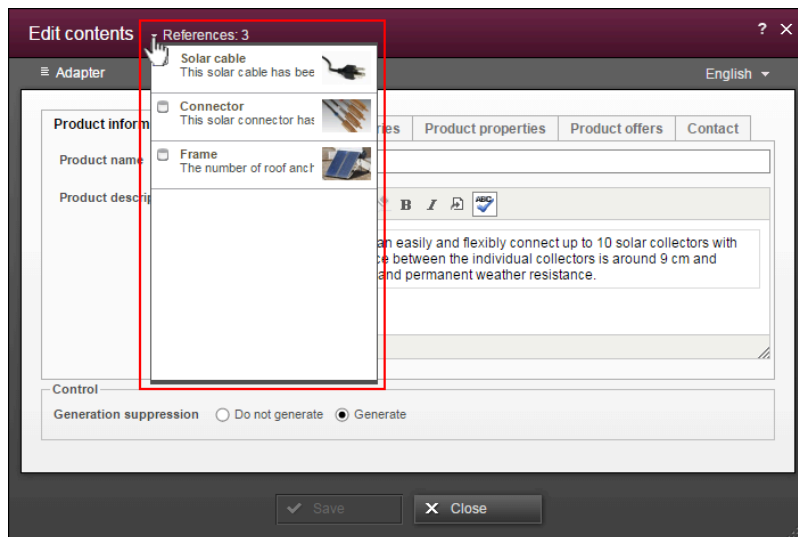
The number next to "References:" indicates the number of places (e.g., pages and/or datasets) where the object appears. In the case of referenced pages, it also includes the page which the editor is currently viewing.

Clicking on "References:" opens a window listing the pages by name together with an object type icon.

For more information, see *FirstSpirit Manual for Editors (ContentCreator)*.

60   Input components

60.1   CMS_INPUT_DOM: Normalized output of block elements   2018-12

For HTML output of a CMS_INPUT_DOM component, the FirstSpirit-internal document model can be "normalized" to fit the HTML document model by calling

```
$CMS_VALUE(st_dom.normalize)$
```

This causes lists and tables to no longer be nested within block elements (usually, `<p>`).

In the past, the first call to `.normalize` caused all subsequent DOM output to be normalized, regardless of whether `$CMS_VALUE(st_dom)$` or `$CMS_VALUE(st_dom.normalize)$` was used. This erroneous behavior has now been fixed: `.normalize` now only applies to the current call to `$CMS_VALUE(st_dom.normalize)$`. Thus, calling `.normalize` is now necessary each time the variable should be output in a normalized fashion in the template.

If `.normalize` is used in existing FirstSpirit projects, project developers should check if templates (uses of `$CMS_VALUE(st_dom)$`) have to be modified accordingly.

For further information, see *FirstSpirit Online Documentation*,

- "Template development / Template syntax / Data types / DomElement", method `normalize`

- "Templates (basics) / Composition of templates / Format templates / Output"

60.2   CMS_INPUT_IMAGEMAP can obtain an additional "upload" attribute

5.2R21

CMS_INPUT_IMAGEMAP can be expanded to include an additional `upload` attribute.

If the additional `upload="YES"` attribute is set, the following upload functions are released:

In ContentCreator

- Additional icon in the input component for uploading a file from the file system on the workstation computer

- Dragging and dropping a file from the file system on the workstation computer
  - onto the Imagemap in the preview

  - onto the input component in the open edit window

In SiteArchitect

- Additional icon in the input component for uploading a file from the file system on the workstation computer

- Dragging and dropping from the file system on the workstation computer directly onto the input form

For more information, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / IMAGEMAP"

- *Documentation for FirstSpirit SiteArchitect*, "Input forms / Link-sensitive graphic"

- *FirstSpirit Manual for Editors (ContentCreator)*, "Editing a preview page / Input elements / Imagemap"

60.3   Duplicating entries in the input component FS_CATALOG `2018-09`

In ContentCreator, it is now possible to duplicate an entry of the input component FS_CATALOG. The new button is available both in the form dialog as well as in the preview.

Button "Duplicate entry"

Clicking this button will duplicate the selected catalog entry.

60.4   Dynamic Forms: New Property "PRESET" `5.2R17`

In templates, form defaults for input components may be specified by clicking the icon

in the "Form" tab of the respective template; this opens the dialog "Edit form defaults".

The new property `PRESET` may be used to determine if the user is currently editing in this dialog:

```
<PROPERTY name="PRESET" source="#global"/>
```

This expression returns TRUE if the user is currently editing in the dialog "Edit form defaults", otherwise it returns FALSE.

For further information, see *FirstSpirit Online Documentation*, chapter "Template development / Rules / Form properties <PROPERTY/> / Property PRESET".

60.5   Extended snippet access for FS_INDEX and FS_CATALOG `5.2R4`

The "Snippets" can be used in many places in FirstSpirit: e.g., when displaying FirstSpirit objects in search results, in reports, and also to display entries in FS_CATALOG and FS_INDEX. In the definition of snippets (in templates) the template developer can specify what information about the FirstSpirit object is to be used in search results, reports, etc. and thus customize the content to meet the specific needs of editors and the conditions of the project concerned.

The following additions have been made to this area with FirstSpirit version 5.2R4:

FS_CATALOG: Simplified access to values using dot notation (`getItems` method)

The FS_CATALOG input component can be used to create and manage lists of sections or links.

It returns a `Catalog` object which contains `Card` objects. A `Card` object represents an entry in FS_CATALOG and contains information about

- the section or link template selected by the editor for this entry,

- the form fields defined in the selected template,

- the values saved by the editor in the form fields.

The new `getItems` method (in Bean syntax: *.items*) can be used to access `Card` data more directly and work with this data. It returns a list (`List` data type) of `FormData` objects:

```
FS_CATALOG_VAR.items
```

In order to be able to identify and output the value of a certain input component (`FormField`) in this list for a snippet definition, for example, both the identifier of the required input component and its position in the list must be specified:

```
FS_CATALOG_VAR.items[0].st_text
```

In this example, the value of "st_text" of the 1st entry in the FS_CATALOG component is identified with the "FS_CATALOG_VAR" identifier.
(This method is not only available in snippet definitions.)

FS_CATALOG: Access to snippets of entries (`getSnippets` method)

The new `getSnippets` method (in Bean syntax: *.snippets*) can now be used to access snippet values of the entries of an FS_CATALOG component. Instead of the identifier of the required input component (e.g., "st_text" for a CMS_INPUT_TEXT component), only the field of the snippet definition has to be specified when using `getSnippets`:

- *thumbnail* outputs the value of the "Thumbnail" field

- *header* outputs the value of the "Header" field

- ▪ *extract* outputs the value of the "Extract" field

of the snippet definition of the corresponding entry of the FS_CATALOG component.

The method returns a list ("List" data type). The required element of the list can be returned by specifying the position number (in square brackets, counting starts at *0*).

Example:

```
FS_CATALOG_VAR.snippets[0].thumbnail
FS_CATALOG_VAR.snippets[0].header
FS_CATALOG_VAR.snippets[0].extract
```

The `FS_CATALOG_VAR.snippets[0].header` call returns the value from the field of the first entry of the FS_CATALOG component that is defined in the corresponding section or link template.

(This method is not only available in snippet definitions.)

The new `CatalogAccessor` data type has also been implemented in this context.

FS_INDEX: Access to snippets of a DataAccessPlugin (DAP, `getSnippets` method)

When an FS_INDEX input component is accessed via a `FormData` object, an `Index` type object containing a `Record` object for each entry in the index is returned. The `Index` object can be used both to manage the index entries and to create new entries.

In template set and snippet definitions of templates, by contrast, when an FS_INDEX input component is accessed, an `IndexAccessor` type object is returned, which facilitates read access to the `String` identifiers of the entries saved in the component and to the data objects, which correspond to the entries and have been resolved via the DataAccess plug-in associated with the index component.

From FirstSpirit version 5.2R4, additional interfaces which are able to display these external data objects in the form of a snippet are available in this area (same as FS_CATALOG, see above). The following calls can be used within the snippet definition (notation):

```
FS_INDEX_VAR.snippets[0].thumbnail
FS_INDEX_VAR.snippets[0].header
FS_INDEX_VAR.snippets[0].extract
```

The `FS_INDEX_VAR.snippets[0]` call returns a snippet interface for the first DAP entry of the FS_INDEX component.
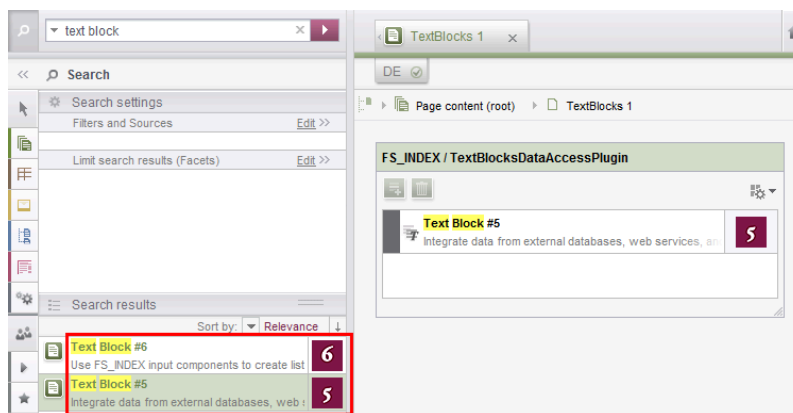
For more information, see *FirstSpirit Online Documentation*,

- "Template development / Template syntax / Data types / CatalogAccessor"

- "Template development / Forms / Input components / INDEX / Access to FS_INDEX"

- "Template development / Template syntax / Data types / IndexAccessor"

60.6 FS_CATALOG: Representing language independent content (link lists) `5.2R16`

The FS_CATALOG input component allows to create lists of either sections or links so that editors can maintain multiple sections or links directly within the component, without the need to switch to another input component, another section, and so on. To edit language-dependent contents corresponding tabs are provided.

Forms based on link templates always are language-independent. To provide better clarity, language tabs won't be shown anymore in FS_CATALOG components that allow selecting link templates (`<TEMPLATES type="link">`).

60.7 FS_CATALOG: Identification of entries ("cards") `2018-12`

The input component FS_CATALOG enables creation of lists with sections or links. It returns a `Catalog` object. This object contains `Card` objects. Each `Card` object represents a single FS_CATALOG entry.

As of the current FirstSpirit release, a single entry ("card") of an FS_CATALOG can now be identified using a unique ID. This ID may be accessed during generation, for instance. Such an ID may look as follows:

```
c84c8dae-512a-4142-9068-85208d4072fe
```

`Card` objects: method `getId()`

`Card` objects now provide a new method `getId()` which may be used to obtain the ID of the associated FS_CATALOG entry.

Example:

```
<p>
    $CMS_FOR(var,st_catalog)$
        ID:    $CMS_VALUE(var.getId())$
    $CMS_END_FOR$
</p>
```

Here, *var* is the variable for the (list entry) object, *st_catalog* is the variable name of the FS_CATALOG component.

`Catalog` objects: method `find(String)`

`Catalog` objects now provide a new method `find(String)` which returns a `java.util.Optional<Card>` object which contains the `Card` object with the submitted ID (if present in the catalog).

The following syntax sample outputs the contents of the input component *st_text* of a specific entry (here, the FS_CATALOG entry with the ID *7644cfe2-b117-4ec7-bc94-bb8f255d1f59*):

```
$CMS_VALUE(st_catalog.find("7644cfe2-b117-4ec7-bc94-bb8f255d1f59").get().item.st_text)$
```

System object `#card`

The system object `#card` may be used to access the entry of an FS_CATALOG input component. It is available in the (section or link) templates which are being referenced by the FS_CATALOG input component, however, only in `$CMS_VALUE(...)$` calls, not in output via `$CMS_FOR(...)$`.

In order to obtain the ID of an entry, `#card` may also be used in conjunction with `getId()` in the referenced (section or link) template.

Example:

```
$CMS_VALUE(#card.getId())$
```

For further information, see *FirstSpirit Online Documentation*,

- "Template development / Forms / Input components / CATALOG"

- "Template development / Template syntax / Data types / Card"

- "Template development / Template syntax / Data types / Catalog"

- "Template development / Template syntax / System objects / #card"

60.8 FS_CATALOG: Nesting of language-dependent input components

5.2R5

From the current version of FirstSpirit onwards, the use of language-dependent input components within a language-dependent FS_CATALOG input component will be disallowed by default.

Old behavior

In previous FirstSpirit versions, it was technically possible to configure both FS_CATALOG and inner forms to be language-dependent. This frequently led to problems related to translation processes, general usability of input components for editors, and maintainability of project development as well as to impaired performance. Content entered by the editor into nested, language-dependent FS_CATALOG constructs could (especially so when using translation help) potentially not be output (e.g. during generation) or edited afterwards.

Thus, it was recommended to use language-independent input components within language-dependent FS_CATALOG input components. As a consequence, section templates that were meant to be used within both pages and FS_CATALOG input components had to be duplicated to produce a language-independent version (for use within language-dependent FS_CATALOG components) and a language-dependent version (for use in all other cases).

New behavior

Starting with the current version of FirstSpirit, all projects created with FirstSpirit version 5.2R5 or newer will by default be configured to disallow the use of language-dependent input components within a language-dependent FS_CATALOG input component. Language-dependent input components in templates that are used within a language-dependent FS_CATALOG component will automatically be treated as language-independent by FirstSpirit. This alleviates the disadvantages imposed by the old behavior.

> **!** The old behavior is not recommended, and future versions of FirstSpirit may cease to support it. Migration is recommended.

Compatibility with projects from older FirstSpirit versions

For projects that

- exist on a FirstSpirit server running a previous version that is upgraded to FirstSpirit version 5.2R5 or newer

- are imported from a FirstSpirit server running a previous version to a server running FirstSpirit version 5.2R5 or newer via project import functionality

the old behavior will be supported until further notice. In order to prepare projects that were created in previous versions of FirstSpirit for use with the new behavior, FirstSpirit offers two compatibility settings that allow a stepwise migration.

> **!** The data handling used differs between the old and new behavior. If language-dependent input components are used within a language-dependent FS_CATALOG input component in a project, the data of this FS_CATALOG component must be checked and - if necessary - backed up before the new behavior can be used project-wide. Without checks and backups, switching to the new behavior can cause data loss in the project: If the FS_CATALOG component or inner forms of this component already contain content, saving this FS_CATALOG component will cause content to be stored in the language the editor is currently editing (fallback: master language); if content exists in other languages, these language versions will be discarded.

Both compatibility settings have the following effects:

- Compatibility setting "disabled": Within a *language-dependent* FS_CATALOG input component, inner input components which are configured to be language-dependent in their template will be handled as *language-independent* (new behavior).

- Compatibility setting "enabled": Within a *language-dependent* FS_CATALOG input component, inner input components which are configured to be language-dependent in their template will be handled as *language-dependent* (old behavior).

Compatibility for **individual FS_CATALOG input components** can be turned off in templates using a parameter, `forbidPolyglotDataHierarchy`. This allows application of the new behavior for single FS_CATALOG input components, while other FS_CATALOG input components for which this parameter is not set will continue to use compatibility with previous FirstSpirit versions.

Once all FS_CATALOG components are prepared for the new behavior, the compatibility setting can be deactivated **project-wide** ("FirstSpirit ServerManager / Project / Properties / Compatibility / FS_CATALOG: Nesting of language-dependent input components"):
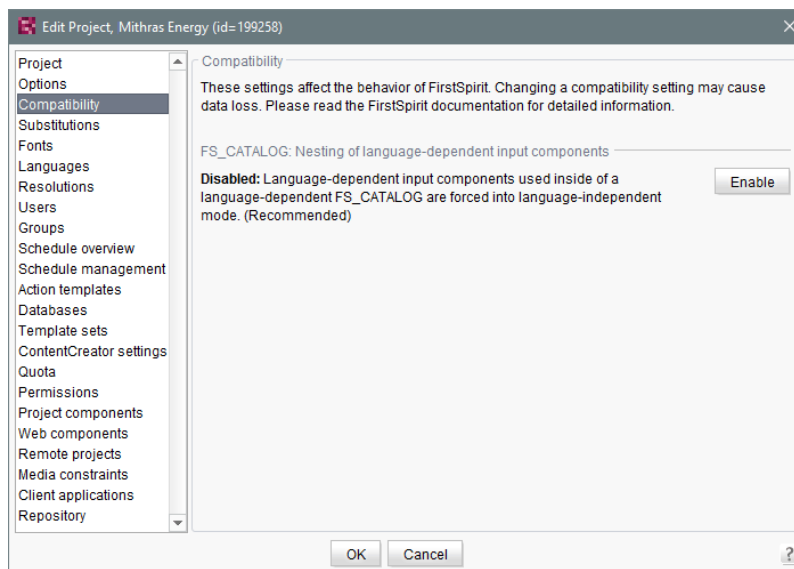
The project-wide compatibility setting affects all language-dependent FS_CATALOG input components in a project.

From FirstSpirit version 5.2R5 onwards, when transporting project properties using "Content Transport" functionality or via a project export, this property will be included in the transport/export.

FirstSpirit API

Additionally, the methods `getForbidPolyglotDataHierarchy` and `setForbidPolyglotDataHierarchy` (FirstSpirit Access API, interface `Project`, package `de.espirit.firstspirit.access.project`) allow access via API to the value set in project properties. `getForbidPolyglotDataHierarchy` returns the currently set value of the compatibility setting "FS_CATALOG: Nesting of language-dependent input components", while `setForbidPolyglotDataHierarchy` may be used to set this setting's value.
The `ProjectAgent`, obtainable via the `SpecialistsBroker` (both FirstSpirit Developer API, package `de.espirit.firstspirit.agency`), also provides a means to read the current value of the compatibility setting: `getForbidPolyglotDataHierarchy`.

For further information, see

- *Template development / Forms / Input components / CATALOG* (→*FirstSpirit Online Documentation*), parameter `forbidPolyglotDataHierarchy`

- *FirstSpirit Manual for Administrators*, chapter "Compatibility"

- Module documentation for "FirstSpirit CorporateContent", chapter "Transporting project properties"

60.9   FS_INDEX: Editorial functionality using drag-and-drop `5.2R5`

In ContentCreator, users may create sections, datasets, and links (in a rich-text editor or a table / CMS_INPUT_DOM or CMS_INPUT_DOMTABLE) by dragging and dropping content onto a specifically configured FS_BUTTON input component. To achieve this, a

- section template,

- link template, or

- table template

which should be used to create new content via drag-and-drop must be configured to use the desired target input component (tab "Form") for such drag-and-drop content as its **Drop Editor** (tab "Properties").
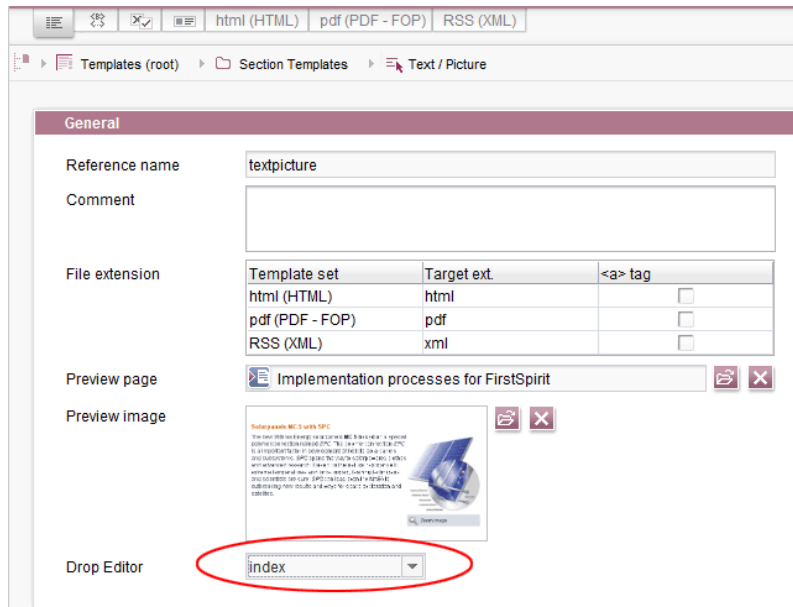
This way, elements provided by a DataAccessPlugin may be used via drag-and-drop in order to create a new section, dataset, or link (in CMS_INPUT_DOM/DOMTABLE). The element dragged and dropped onto the button will then be referenced by a target index component.

If a dataset provided by the DatasetDataAccessPlugin is dropped onto an FS_BUTTON with class `NewSection` (`onDrop="class:NewSection"`) but is incompatible with any FS_INDEX components listed as drop editors (i.e. it does not match any table template configured for FS_INDEX components, tag `SOURCE / TEMPLATE`), the operation will be aborted with the error message "The transferred data has not been accepted", and no section will be created. Due to technical reasons, a section will in fact be created and deleted again in the background, such that the page will afterwards be shown as changed.

In addition to the "Add" button and drag-and-drop onto an index component in an "Edit" dialog, it is now also possible to **add new entries to index components** by dragging a compatible dataset from a report (e.g. "Search", "Bookmarks", etc.) or data from a custom report implementation into the preview area.
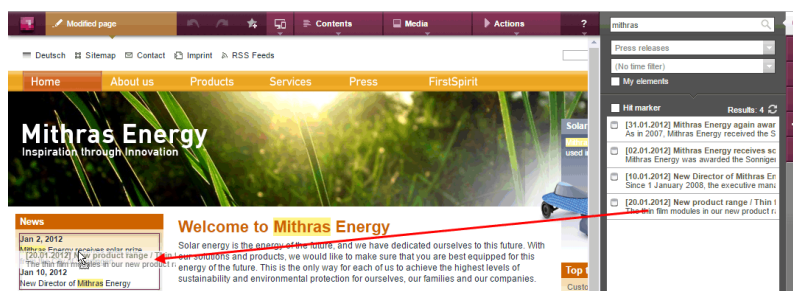
The prerequisite is compatible mark-up added via `editorId`.

(Note: An appropriate preview page ("Properties" tab) must be selected so that datasets will appear in search, bookmarks etc.)

Entries within a form may now also be **replaced** with other compatible data from reports. A colored marker

Replace

or

Move/Insert above

or

Move/Insert left

indicates whether the data would replace an existing entry if dropped:
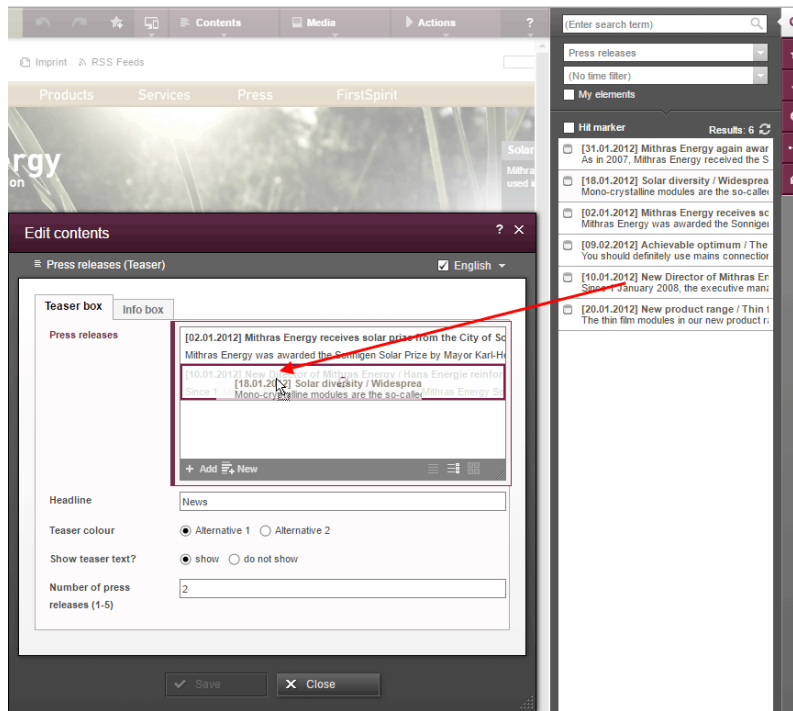
or be added as a new entry:
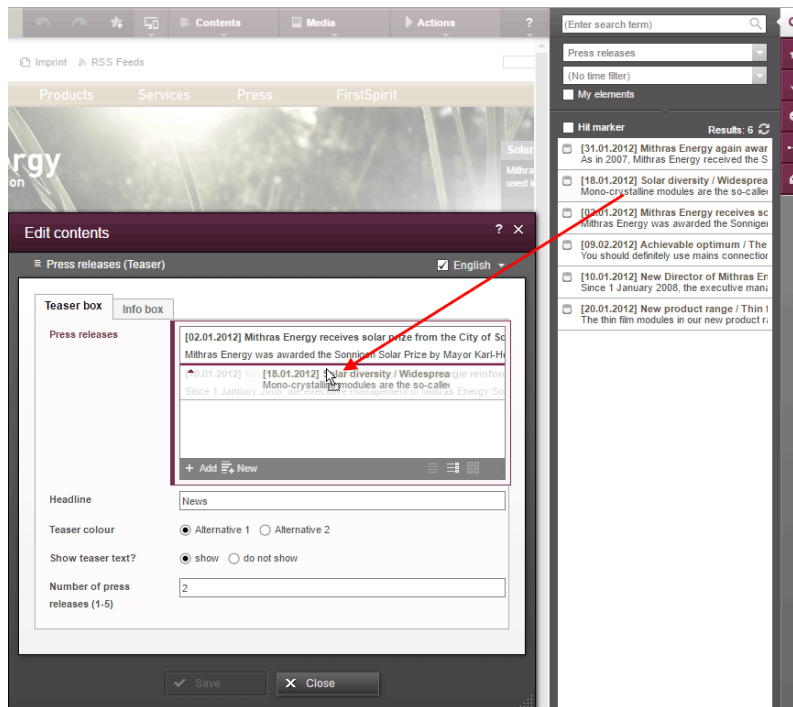
The order of entries may be modified by dropping an element that is already referenced in the component onto the form, but the dropped element will not be referenced twice.

In SiteArchitect, as of the current FirstSpirit version, data may also replace existing entries via drag-and-drop:
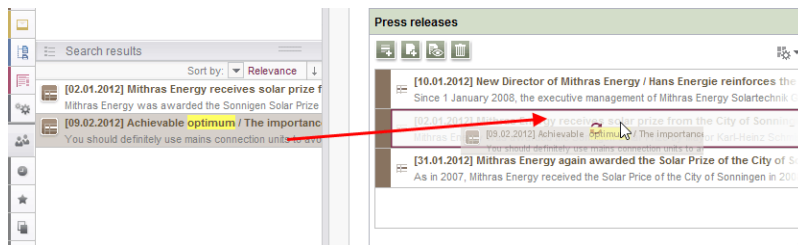
or be added as a new entry:
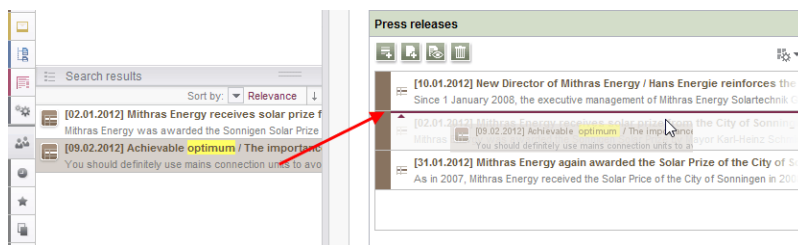
Note for use cases in which only one entry is to be selectable in FS_INDEX: If you would like that the editor can select only one entry within your FS_INDEX component, you can manage this using a rule with the `ADD` property and a "less than" check (using `<LESS_THAN/>`), for example

```
<RULE>
    <WITH>
        <LESS_THAN>
            <PROPERTY name="SIZE" source="fs_index"/>
            <NUMBER>1</NUMBER>
        </LESS_THAN>
    </WITH>
    <DO>
        <PROPERTY name="ADD" source="fs_index"/>
    </DO>
</RULE>
```

For technical reasons, starting with FirstSpirit version 5.2R5, the *ADD* rule is disregarded when replacing entries in ContentCreator **in the preview**. For ensuring that only the desired number of entries will not be exceeded, please use a rule with the restriction level SAVE, which will be applied when saving the form, for example

```
<RULE>
    <WITH>
        <LESS_THAN>
            <PROPERTY name="SIZE" source="fs_index"/>
            <NUMBER>2</NUMBER>
        </LESS_THAN>
    </WITH>
    <DO>
        <VALIDATION scope="SAVE">
            <PROPERTY name="VALID" source="fs_index"/>
          <MESSAGE lang="*" text="The maximum number of entries is exceeded! Max. 1"/>
            <MESSAGE lang="DE" text="Anzahl der Einträge überschritten! Max. 1"/>
        </VALIDATION>
    </DO>
</RULE>
```

If an entry is added to FS_INDEX via the preview in ContentCreator even though there is already an entry, the form will open showing the rule violation ("The maximum number of entries is exceeded! Max. 1") and it can only saved if surplus entries have been removed.

For further information, see

- *FirstSpirit Online Documentation*,
    - "Template development / ContentCreator / Functional scope", section "FS_BUTTON handler classes"

    - "Template development / Rules"

- *FirstSpirit Manual for Editors (ContentCreator)*,
    - "Editing the preview page / Standard input elements / Lists (new, datasets)"

    - "Editing the preview page / The FirstSpirit operating concept", section "Using drag-and-drop"

- *Documentation for FirstSpirit SiteArchitect*, "Default input forms / Index (FS_INDEX)"

60.10 FS_INDEX: Manually Sorting Datasets 5.2R17

FS_INDEX allows creation of lists of data which are provided by modules. FirstSpirit contains one solution which supports selection of datasets from data sources of a project ("DatasetDataAccessPlugin").

Until now, the input component FS_INDEX, used in conjunction with "DatasetDataAccessPlugin", already supported sorting datasets via drag-and-drop. This manual sort order was not stored in every case, however, and thus did not always affect the sort order when datasets were output. For FS_INDEX components which are mapped to a to-N foreign key relationship, the current version of FirstSpirit now supports editors' manual sorting of datasets, affecting both the display order in the input component as well as the output order.
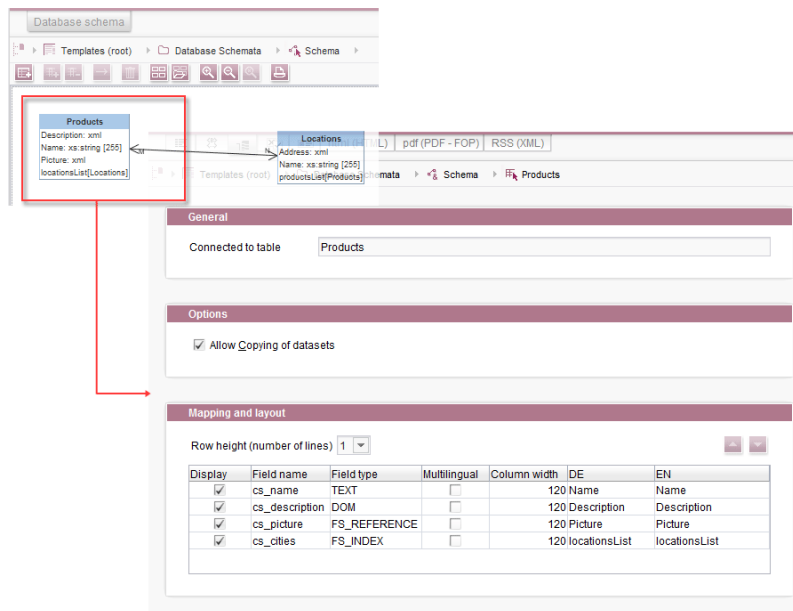
Database schema and table template

On a technical level, a new system column has been introduced:

```
FS_META_DATA
```

(may be shown in the database schema by deactivating "Customize layout / Hide system columns")
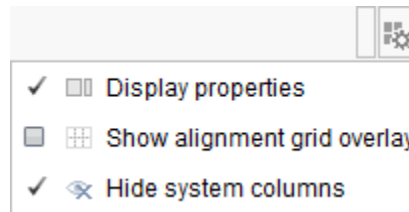
Information about the sort order of the component's entries will be stored in this column.

In **newly created** database schemata or tables, this column is automatically created such that the new sorting functionality can be used right away.

In **already existent** database schemata, this column will be created in tables as soon as the respective schema is updated, i.e. the schema is modified and saved. Alternatively, the context menu item "Edit externally" may be used on the respective schema; either closing the dialog "Externally edited elements" via "Apply changes and close" or a sequence of clicking "Apply changes" and closing the dialog will cause the column to be created in the schema. During a project import into a FirstSpirit server, the column will automatically be added if necessary.

> **!** If a database schema which contains this new column is to be used in other projects (e.g. via FirstSpirit Content Transport), the database schema in the target project must be updated **before** conducting a transport of data from the source project into the target project, so that the sort order of datasets will be correctly retained in the target project.

Note: Output via the system object *#row* (e.g. in a content projection - see *FirstSpirit Online Documentation*, "Templates (basics) / Composition of templates / Database schemata / Dataset output", section "via content projection") does not regard the sort order.

Note: A migration from FS_LIST, type *DATABASE* to FS_INDEX may be realized programmatically by a template developer. The following script shows a procedural example. Prerequisite: The schema must already contain the column `FS_META_DATA`, and the FS_LIST definition must already be switched to FS_INDEX.

```
dataset = context.getElement();
dataset.setLock(true, false);
formData = dataset.getFormData();
form = formData.getForm();
indexComponent = form.findEditor("images");
source = indexComponent.source();
session = source.createSession(context, false);
positions = Collections.synchronizedSortedMap(new TreeMap());
pictures = formData.get(null, "images");
index = pictures.get();
for (record : index.iterator()) {
  data = session.getData(record.getIdentifier());
  formData = data.getFormData();
  position = formData.get(null, "position").get();
  positions.put(position, record);
}
sorted = positions.entrySet().stream().sorted(Map.Entry.comparingByKey());
index.clear();
for (el : sorted.iterator()) {
  index.add(el.getValue());
}
pictures.set(index);
dataset.setFormData(formData);
dataset.save("Re-sort", false);
dataset.setLock(false, false);
```

where

- *images* is the unique identifier of the FS_INDEX input component which should be migrated (and which is used to select datasets from the target table),

- *position* is the name of the column in which the sort order of datasets was stored (FS_LIST, tag *PERSISTENCEINDEX*).

For further information, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / INDEX",

- *FirstSpirit Online Documentation*, "Templates (basics) / Composition of templates / Database schemata",

- *Documentation for FirstSpirit SiteArchitect*, "Input forms / Index",

- *FirstSpirit Manual for Editors (ContentCreator)*, "Editing a preview page / Input elements / Index"

60.11 FS_INDEX: Emptiness check with ".isEmpty" `5.2R7`

The input component FS_INDEX *Template development / Template syntax / Data types / IndexAccessor* (→*FirstSpirit Online Documentation*).

Within output channel definitions, accessing the value set of an FS_INDEX input component returns an object of type `IndexAccessor`.

As of the current FirstSpirit version, the data type `IndexAccessor` includes a new implementation of the method `.isEmpty()` (in Bean syntax: `.isEmpty`). This method may be used to check whether or not the FS_INDEX input component contains entries.

- If the input component contains at least one entry, the method returns `false`.

- If the input component does not contain any entries, the method returns `true`.

Example:

```
$CMS_VALUE(fs_index.isEmpty)$
```

Previously, this method always returned `false`.

For further information, see *Template development / Template syntax / Data types / IndexAccessor* (→*FirstSpirit Online Documentation*).

60.12 FS_LIST, FS_INDEX, FS_CATALOG: Optimization of Multi-Language Display 5.2R19

The input components FS_LIST, FS_INDEX, and FS_CATALOG may be used to create lists of entries which are based on section or link templates or contain datasets. In these ("outer") components, the contents of inner components are used as labels to display the inner components. For FS_CATALOG and FS_INDEX, the definition in the tab "Snippet" of the associated templates is used; for FS_LIST, the value of the inner input component or the configuration via the tag *LABELS / LABEL* is used. Example FS_CATALOG:
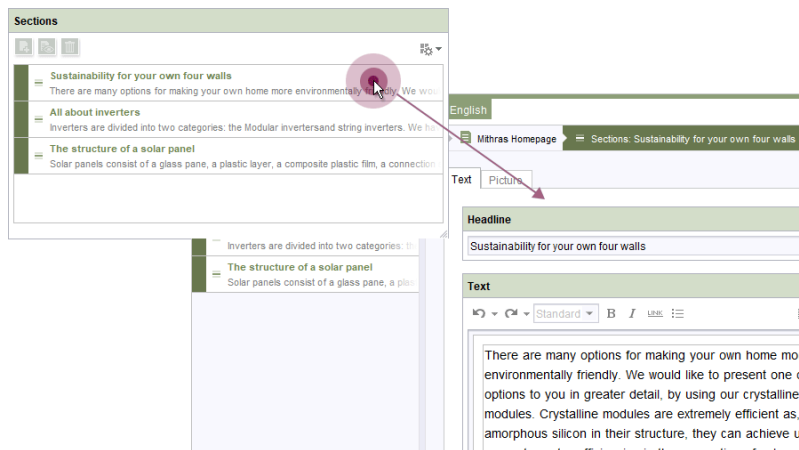
- **outside:** label "Sections"

- **inside:** label "Sustainability for your own four walls | There are many options..." etc.

In projects with multiple project languages (also known as "content languages"), depending on the input component's configuration, the contents may be language-dependent (= different content/values in different languages, `useLanguages="yes"`).

As of the current version of FirstSpirit, labels of inner components will always be displayed in the language that is chosen via the language tab, independently of the setting in the menu "View / Preferred

display language". Thus, in a language tab *EN*, contents will always be displayed in the language *EN*. Previously, the display language (e.g. *DE*) was used in some cases.

60.13 Methods ".convert" and ".convert2" in FS_LIST 5.2R4

With FirstSpirit version 5.1 the attribute `convertEntities` of a form field may not have been respected inside a FS_LIST component. This could have been corrected using the functions `.convert` or `.convert2` in the corresponding template.

With FirstSpirit version 5.2 the behaviour in FS_LIST has been corrected, so that the usage of `.convert` and `.convert2` than led to a duplicate conversion in these cases.

With FirstSpirit v5.2R4 this duplicate conversion will now be suppressed. These cases are logged in the generation log:

```
supressing duplicate conversion of field 'st_test'
```

61 External Synchronization

61.1 General changes to the data format 5.2R14

In the course of export format readjustment, an export will now only create one directory named `.FirstSpirit` at the highest directory level instead of creating several directories of that name.

If exports have been made using "External Synchronization" in earlier versions of FirstSpirit, the first export with the current version of FirstSpirit will remove all existing subdirectories named `.FirstSpirit` from the external synchronization directory in the file system. Only one directory named `.FirstSpirit` will remain, at the highest directory level.

In order to create the new export format after an upgrade from an earlier version of FirstSpirit, it is stringently required to perform a new export with the option `deleteObsoleteFiles` activated. (If **FSDevTools** are used (recommended best practice), this option is activated by default.)

The directory `.FirstSpirit` at the highest directory level contains internal meta information for successful synchronization of external content with the FirstSpirit project. **When using a version control system, this directory should not be versioned!**

Furthermore, the contents of the files `Info.txt` and `Files.txt`, which also contain internal meta information, have been changed, and the files have been renamed to `FS_Info.txt` and `FS_Files.txt`, respectively. In this context, the format of the file `Entities.xml`, which contains contents of datasets, has been changed as well.

61.2 Consideration of Custom Properties in External Synchronization

`5.2R17`

The method `setCustomProperties` (interface `Project`, package `de.espirit.firstspirit.access.project`, FirstSpirit Access API) may be used to set custom project properties ("custom properties"). These may be relevant e.g. in the context of FirstSpirit CaaS.

As of the current version of FirstSpirit, such custom properties may now be synchronized using "FirstSpirit External Synchronization". To this end, a new *ProjectPropertyType* (enum `PropertiesTransportOptions.ProjectPropertyType`, package `de.espirit.firstspirit.transport`, FirstSpirit Developer API) was introduced:

```
CUSTOM_PROPERTIES
```

Example command line call:

```
fs-cli -p DevProject -sd "D:\Git\DevProject" export projectproperty:CUSTOM_PROPERTIES
```

This call causes the inclusion of custom project properties in the export.

61.3 GUI will be omitted `5.2R4`

Previous feedback and experience show that the external synchronization, which has been provided since FirstSpirit 5.1, is mainly used programmatically in the context of a distributed development process - instead via the GUI within the SiteArchitect. For this reason we decided to omit the GUI with FirstSpirit 5.2R4.

We ask all customers and partners to switch their development process to our API or to the command line tool "FSDevTools". It encapsulates the existing API and can be used via the command line or an IDE.

Please contact our Technical Support if any problem occurs while changing your development process.

Further information can be found in the Community.

61.4   Detection of empty directory structures (missing meta files) `5.2R14`

Especially when using "FirstSpirit External Synchronization" in distributed development, empty directory structures (i.e. directories without meta files `FS_Files.txt`, `FS_Info.txt`, `FS_References.txt`, `StoreElement.xml`, etc.) may remain, e.g. due to moving folders in FirstSpirit. In this case, the FirstSpirit objects in the file system will no longer be recognized as such.

If these meta files are missing, an error message will be output if an export or an import is attempted, and the export/import will be prevented. If `deleteObsoleteFiles` is set to "true", an export will only log a warning.

61.5   Export: Additional information about exported files (interface "ExportOperation.Result") `5.2R14`

In addition to providing information about files which were created in, deleted from, or updated in the file system during an export, the interface `ExportOperation.Result` now includes newly implemented methods which provide information about moved files as well as other information (FirstSpirit Developer API, package `de.espirit.firstspirit.store.access.nexport.operations`, interface `ExportOperation.Result`).

When using **FSDevTools** (recommended best practice), this information will already be evaluated and displayed in the log.

61.6   Export: Explicitly and implicitly selected objects `5.2R14`

Because "External Synchronization" is designed for synchronization of partial trees between projects, for each FirstSpirit object that is exported via the "External Synchronization" functionality, the following objects will also be exported:

- all parent objects of the exported object

- all child objects of the exported object

This leads to a distinction between explicitly and implicitly selected objects:

- **Explicit:** The object selected for export as well as all child objects

- **Implicit:** The chain of parent objects of the object selected for export

During an import, explicitly exported objects will be created in the target project if they are not present there and will be updated (i.e. overwritten with each object's respective state in the source project) in the target project if they are already present.

Implicitly exported objects, however, will now only be created in the target project during an import if they are not present there and will no longer be updated if they are already present. Previously, implicitly exported objects were overwritten in the target project with each object's respective state in the source project even if they were already present in the target project.

61.7 Export: Folder "Lost & Found" will no longer be exported 5.2R14

"Lost & Found" folders are created as needed directly underneath the root node of a store in a target project if a parent element (folder) is exported from a source project and imported ("updated") into a target project, but the child elements of this folder are only present in the target project.

Previously, during an export, such "Lost & Found" folders were exported if they were selected for export. As of the current FirstSpirit version, these folders will by default no longer be exported.

This behavior may be controlled via the method `setExportLostAndFound(boolean enable)` of the interface `ExportOperation` (package `de.espirit.firstspirit.store.access.nexport.operations`, FirstSpirit Developer API). The default value is `false`.

61.8 External Synchronization: More stable identification of objects (using GIDs) 5.2R12

The identification of objects via the functionality "External Synchronization" now uses GIDs ("global IDs"). GIDs are project data that are used internally for object referencing. As opposed to UIDs, GIDs are not affected by manual changes, such as renaming an object in either source or target projects, and thus allow for more stable behavior when exporting or importing objects.

Previous behavior: When importing an object from a source project into a target project, External Synchronization attempted to identify a matching object in the target project using the UID. If an object

was identified, modifications to that object in the target project were overwritten. If no object could be identified, the object was created in the target project.

Changes to the UID of the object in either the source or the target projects had the effect that, during a subsequent import into the target project, a matching object could not be identified, always leading to *creation of a new object* in the target project.

Current behavior: When importing an object from a source project into a target project, External Synchronization now attempts to identify a matching object in the target project using the GID. If an object is identified, modifications to that object in the target project will be overwritten. Even if the UID of the object was changed, the object can now be identified in the target project. If no matching object can be identified using the GID, an attempt will be made to identify a matching object using the UID (see "Previous behavior").

61.9   Import: Abort in case of required but missing objects   5.2R14

Many objects in FirstSpirit projects have dependencies to other projects, also called "references". Among others, one goal of a successful use of "FirstSpirit External Synchronization" is to export partial trees from one project into another which will be functional in the target project. This means that the objects referenced by an exported object must be exported as well. There are two types of dependencies:

- **Required missing references:** referenced objects which are necessary in order to export a complete and functional partial tree of a project. E.g. if a page is exported, the templates upon which the page is based are required so that the page can be displayed in another FirstSpirit project following an import. The user must ensure that the required dependencies are present in the target project.

- **Optional missing references:** referenced objects which are referenced by an exported object but which are not necessary in order to export a complete and functional partial tree of a project. E.g. if a page is exported, the media objects referenced by this page are not necessary to display the page itself in the target project following an import and thus do not have to be included in the export/import.

During an import, dependencies will now be checked and the import will be aborted if this import would cause required missing dependencies in the target project. In this case, a `ValidationException` will be thrown. This exception provides information about the required missing dependencies in the target project. Until now, the import was carried out without throwing an exception.

In the course of this behavioral change, the FirstSpirit Developer API interfaces

- `FeatureError` (package `de.espirit.firstspirit.store.access.feature`)

- `SyncOperationException`
  (package `de.espirit.firstspirit.store.access.nexport.exceptions`)

have been extended.

61.10 Import: Deletion of objects `5.2R14`

Deletion of objects in one project will now be correctly regarded during an import into other projects. This means that objects which have been deleted in the project of developer A will now also be deleted in the project of developer B during an import of the respective state.

If there are still required inbound references to such deleted objects, these objects will be moved to the folder "Lost & Found". (Required references are dependent objects which are required for the functionality of an object in the target project, e.g. the page template (Templates store), which is required for the existence of a page (Page Content store), or the page (Page Content store), which is required for the existence of a page reference (Site Structure store).

Previously, objects deleted in the source project were not deleted in the target project upon import.

This behavior now also applies to the functionality "FirstSpirit ContentTransport". Here, objects which did not have required inbound references were moved to the folder "Lost & Found". Now, they will be deleted.

61.11 Import: Identification of new and modified datasets using API (interface "ImportOperation.Result") `5.2R14`

As of the current version of FirstSpirit, the method `getCreatedEntities()` of the interface `ImportOperation.Result` (FirstSpirit Developer API, package `de.espirit.firstspirit.store.access.nexport.operations`) has been optimized: when importing datasets, it now only considers datasets which have been newly created since the last import. Previously, it also considered modified datasets.

Modified datasets may now be identified using the newly implemented method `getUpdatedEntities()`. Datasets which have not been modified since the last import will now not

be considered by the methods `getCreatedEntities()` and `getUpdatedEntities()` during a subsequent import.

For datasets from tables with 1:N or M:N relations, the methods `getCreatedEntities()` and `getUpdatedEntities()` will always consider **both** datasets of the relation (thus, a minimum of two datasets).

When using **FSDevTools** (recommended best practice), this information will already be evaluated and displayed in the log.

61.12 Deletion of obsolete files and additional logging `5.2R7`

In the course of expanding and optimizing the feature set of the FirstSpirit functionality "External Synchronization", as of the current FirstSpirit version, the default value of the method `setDeleteObsoleteFiles(boolean  enable)` of the interface `ExportOperation` (FirstSpirit Developer API, package `de.espirit.firstspirit.store.access.nexport.operations`) has been changed from `false` to `true`.

Example

Initial situation in the project:

```
PageStore
 |-- PageFolder 'A'
 `-- PageFolder 'B'
```

1. Export: Export of 'A'
In the synchronization directory, the following structure will be created:

```
Synchronization Directory
  |-- .FirstSpirit
  |       `-- ...
  `-- PageStore
        `-- 'A'
             |-- StoreElement.xml
             `-- ...
```

2. Export: Export of 'B' ('A' is not included in the export set)

In the synchronization directory, the files previously created for 'A' will be deleted. The file structure will subsequently look as follows:

```
Synchronization Directory
  |-- .FirstSpirit
  |       `-- ...
  `-- PageStore
        `-- 'B'
              |-- StoreElement.xml
              `-- ...
```

If the files for 'A' should be retained, both elements ('A' and 'B') must be added to the `ExportOperation` and exported via this operation:

2a) Export of 'A' and 'B'
The file structure will subsequently look as follows:

```
Synchronization Directory
  |-- .FirstSpirit
  |       `-- ...
  `-- PageStore
        |-- 'A'
        |    |-- StoreElement.xml
        |    `-- ...
        `-- 'B'
              |-- StoreElement.xml
              `-- ...
```

(Generally, during use of the functionality "External Synchronization", only files will be removed that have been created by this functionality.)
Previously, such files were retained by default. This potentially led to the retention in the file system of files associated with elements that have been deleted in FirstSpirit. Existing scripts may require modification.

In this context, **export logging** has been expanded to help better identify which parameters were set for an export. Now, the following parameters and their set values will be output via INFO logging:

- `deleteObsoleteFiles` (method `setDeleteObsoleteFiles(true|false)`)

- `exportRelease` (method `setExportRelease(true|false)`)

- exportParents (method setExportParentElements(true|false))

- exportChildren (method setExportChildElements(true|false))

Example (all in one line):

```
ExportParameters = { deleteObsoleteFiles=false, exportRelease=true,
exportParents=true, exportChildren=true, [...] }
```

61.13 New method "getModifiedProjectProperties" returns imported project properties 5.2R4

Using the functionality "External Synchronization", structures of a FirstSpirit project (e.g. templates, partial store trees, project properties) can be exported into a file system, creating a folder hierarchy which reflects the project's structures. Export and import is carried out using interfaces and methods of the FirstSpirit Developer API.

In addition to the project content that is entered in SiteArchitect and/or ContentCreator, project properties can also be exported/imported with the "External synchronization" function, including across servers. This method can be used, for example, to transfer the properties of a project to an empty project as well as to synchronize the project configuration of multiple projects.

You can use the method getModifiedProjectProperties() of the interface ImportOperation.Result (FirstSpirit Developer API, package de.espirit.firstspirit.store.access.nexport.operations), which has been introduced with FirstSpirit version 5.2R4, to identify if and which type of project settings were imported (for example template sets).

61.14 New method "setExportRelease" to specify whether the release or the current state of elements should be exported 5.2R4

FirstSpirit version 5.2.313 introduces a new method, setExportRelease(boolean), in the interface ExportOperation (package de.espirit.firstspirit.store.access.nexport.operations), which can be used to specify whether the "release" or the "current" state of selected elements should be exported.

In the same FirstSpirit version, the method `setExportReleaseEntities(boolean)` in the interface `ExportOperation` has been marked "deprecated" and may be removed in future versions. Uses of this method should be replaced with `setExportRelease(boolean)`. Methods set to the "deprecated" state can still be used, but as they will be omitted in subsequent versions, this is not advisable. If methods, classes, and interfaces that are no longer supported or are set to deprecated are used in scripts and/or modules, entries are written to log files accordingly (e.g., server log, generation log, etc.). The corresponding log entries should be checked and the cause(s) remedied.

61.15 New method "setIgnoreEntities" replaces "setCreateEntities" `5.2R4`

The interface `ImportOperation` (FirstSpirit Develover API, package `de.espirit.firstspirit.store.access.nexport.operations`) provides methods with which files may be imported from an external file system into a FirstSpirit project based on customer-specific rules using the functionality "External Synchronization".

The method `setIgnoreEntities(boolean ignore)` replaces the method `setCreateEntities`, which has been deprecated as of FirstSpirit version 5.2R4. The new method controls whether existing entities should be imported into the FirstSpirit project.

The default setting is `false`, which causes External Synchronization to import all entities that are currently stored in the file system into the FirstSpirit project, updating existing entities in the project to reflect the data imported from the file system or, if necessary, creating new entities with that data. In order to suppress import of entities from the file system into the project and preserve the entities that exist in the project, call `setIgnoreEntities(boolean ignore)`, providing the `ignore` value `true`.

For further information, see

- *FirstSpirit Online Documentation* "Advanced topics / External synchronization"

- FirstSpirit Developer API, package
  `de.espirit.firstspirit.store.access.nexport.operations`

61.16 Optimized performance `5.2R2`

"External synchronization" is used to export substructures from FirstSpirit (e.g., templates, store subtrees, project properties) in a file system structure with a folder hierarchy. FirstSpirit version 5.2R2 optimized performance when adding elements via the user interface.

For more information on the "external synchronization" function, see *FirstSpirit Online Documentation*, "Advanced topics / External synchronization".

61.17 Update of "FSDevTools" 2018-08

FSDevTools version 2.1.659 or higher is needed to use "FirstSpirit External Synchronization" with the latest FirstSpirit release:

https://github.com/e-Spirit/FSDevTools/releases/tag/2.1.659

For more information, see also the documentation for "FirstSpirit External Synchronization", "Getting started / Components / 'FSDevTools' command line tool".

62 External Synchronization / Content Transport

62.1 Export of database schema information has been modified 5.2R13

By using the keyword COMMON it is possible to export or import the properties of a project:

```
fs-cli export projectproperty:COMMON
```

The current FirstSpirit version does not transmit information about layers used by the project anymore (FirstSpirit ServerManager, "Project properties/ Databases"):
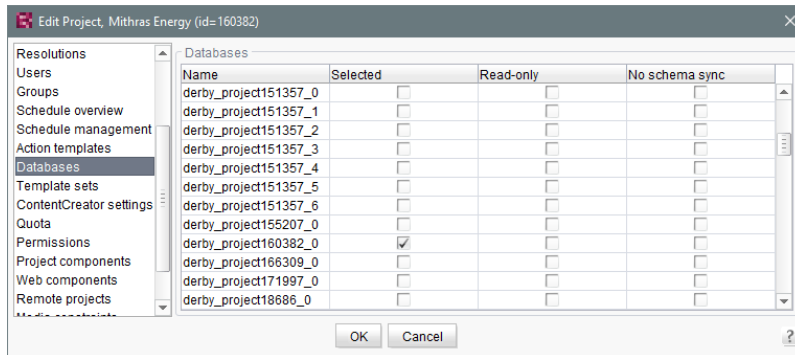
- "Selected"

- "Read-only"

- "No schema sync"

This change also affects FirstSpirit Content Transport.

63   FirstSpirit Content Experience Tools (CXT)

63.1   Global CORS configuration for CXT MicroApps and for CXT REST calls   2019-02

The CXT platform's integration interface provides various functionality of the CXT world in the form of MicroApps and via CXT REST calls. This functionality may then be used in other environments, e.g. classic CRUD access to fragments and variants as well as from within (corporate) web apps which are not executed on the FirstSpirit web server (Cross-Origin Resource Sharing (CORS)).
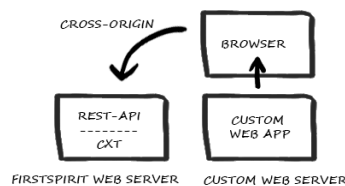
Cross-Origin Resource Sharing (CORS)

If the caller (e.g. a custom web app) and the CXT platform are not located on the same web server ("same-origin"), but on different web servers ("cross-origin"), access from the browser of the external web app is denied by default (due to the Same-Origin Policy (SOP)). This restriction may be lifted for specific URLs.

`corsAllowedOrigins:` The parameter `corsAllowedOrigins` may be used to define a global CORS configuration for CXT MicroApps and for CXT REST calls. Possible values are:

- empty (no access allowed)

- * (all access allowed)

- comma-separated list of URLs (access for individual origins allowed)

The default value is the `FIRST_SPIRIT_URL`.

Detail of the web.xml (FragmentCreator web app):

```
<context-param>
  <param-name>corsAllowedOrigins</param-name>
  <param-value>${FIRST_SPIRIT_URL}</param-value>
</context-param>
```

63.2   Preselecting a variant for editing ("documentId") 2019-02

When using the MicroApp "Edit fragment", the favorited variant of a fragment will be opened for editing by default (*fragmentId*). As of the current release, it is possible to specify which variant should be shown initially. This is done by using the parameter *documentId*.

Example:

```
function setFCMicroApp(row, fragmentId, docId, index){
const context = {
dataAccessPlugin: "FirstSpiritFragmentAccess/FSFAConnector",
documentId: docId,
projectId: prjId
}
```

64   FragmentCreator

64.1   Display of Variants in Favorites List 2018-11

Every editor is able to mark some variants as favorites. The so-marked variants will be displayed above the selected fragment.

Display of variant favorites
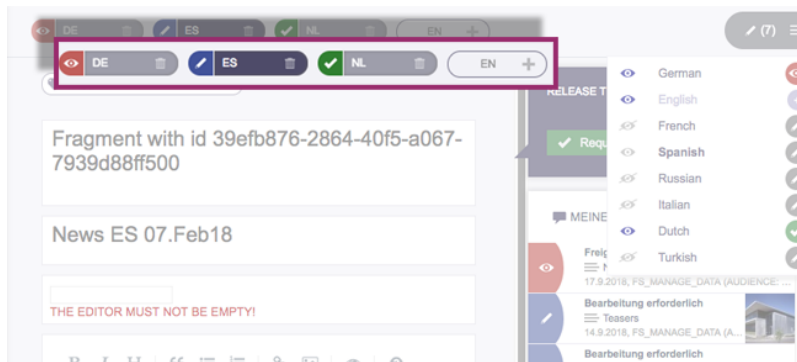
Switching between these variants requires just one click. For each variant, its current status is also shown.

Selection of variants
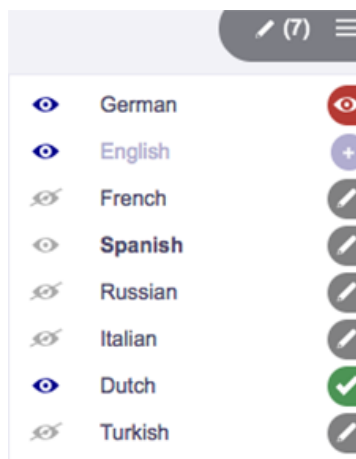
When clicking the icon for variant selection, a list of all available variants of the current fragment is displayed. For each variant, the list shows the variant's status and if it is currently marked as a favorite.

Here, the editor can

- select an existing variant for editing
  (clicking on the variant's name)

- add a variant to the favorites list
  (clicking on the grey eye icon "Not a favorite")

- remove a variant from the favorites list
(clicking on the blue eye icon "Favorite")

- add another variant for the selected fragment
(clicking on the plus icon "Create variant")

64.2   Editing fragments and variants from within ContentCreator   2018-12

Fragments and variants can now not just be referenced in ContentCreator, but also edited from within ContentCreator.

Previous behavior:

Via the "Fragment DAP" module, fragments (and variants) can be edited centrally in a fragment project and made available in various target projects (as reference). The fragments are not imported into the target projects, but referenced via the DAP access instead, meaning that physically they remain in the fragment project.

Advantages:

- no additional storage requirements for fragments used in multiple projects.

- simplified editing and management, as all content is stored in a central fragment project.

New functionality:

Fragments and variants can now also be edited from within ContentCreator. To achieve this, a properly configured `FS_INDEX` input component can be created in the project. This causes an "Edit Fragment" button to be displayed to the editor in ContentCreator at all referenced fragments. By clicking on the button, the form from the FragmentCreator is opened as a MicroApp directly within the ContentCreator and can be edited there. The editor can then close the form (FragmentCreator). All changes are directly viewable in the ContentCreator.
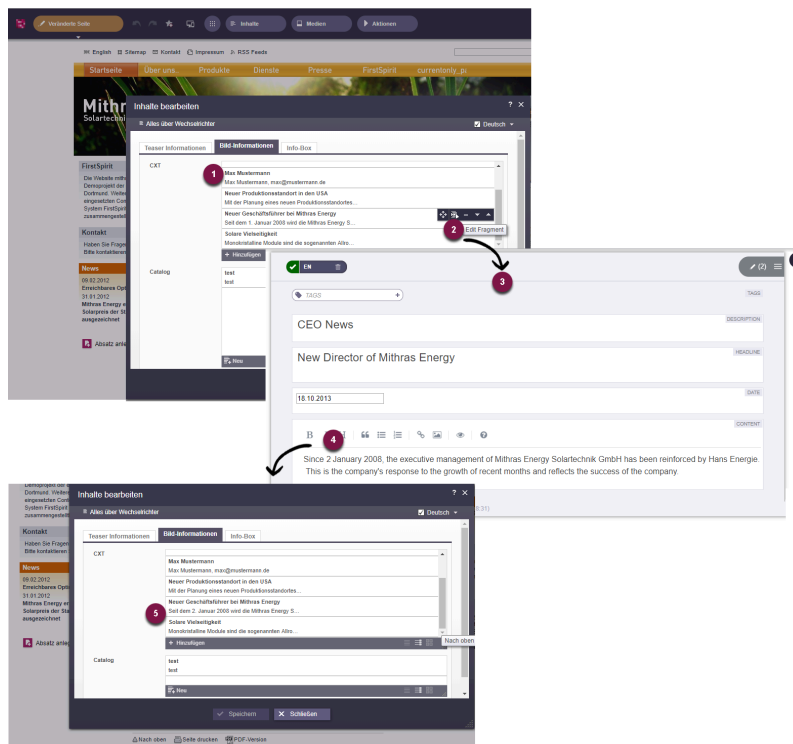
Initialize editing a fragment from within ContentCreator

Illustration:

- (1) Display of the referenced fragments or variants in the ContentCreator.

- (2) Insertion of the "Edit fragment" button during mouseover in the ContentCreator.

- (3) By clicking on the button, the form from the FragmentCreator opens as a MicroApp directly in the ContentCreator.

- (4) The contents of the fragment or variant can be edited. Changes are saved automatically.

- (5) The changes to the fragment or variant appear directly in the ContentCreator.

Outlook: The new **integration interface of the CXT** platform was used for this functionality. This interface provides individual functions from the CXT world in form of MicroApps which can then be used in other environments. The integration interface will be further developed in the future and can then be used, for example, to enable the processing of fragments in external applications (e.g. single-page web apps).

Configuration: To use the new functionality in the ContentCreator, you have to:

- Install the "Fragment DAP" module on the Server.

- Add the web component "Fragment DAP for ContentCreator" in the ServerManager under "Server Properties - Web Applications - ContentCreator". This web application provides a configuration interface. The URL to the MicroApp must be configured here.

64.3 Delivery of fragments and variants via FirstSpirit CaaS (Content-as-a-Service) 2018-12

The module "CaaS Integration for CXT" enables delivery of a fragment project's content via the universal FirstSpirit CaaS interface so that it may be obtained by various frontends (classical web pages, mobile apps, web shops, digital signage, social media, single-page applications, portals) via pull principle.
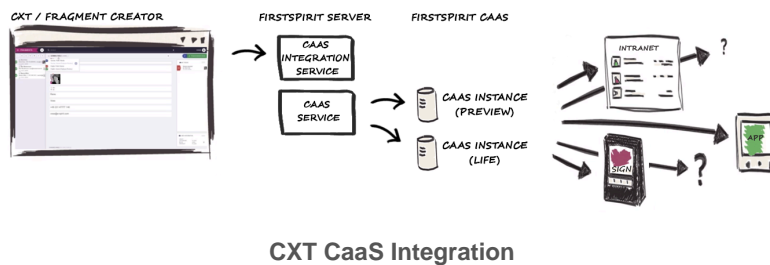
CXT CaaS Integration

Benefits:

- The content (fragments and variants) can be reused without limit, requiring no additional implementation effort for a new output channel. The final rendering or the output channel is of no concern here. Once created, these fragments may be used in a wide range of scenarios.

- Content can be published flexibly, both on the corporate level as well as into third-party channels.

The module "CaaS Integration for CXT" contains the **service "CXT CaaS Integration Service"** which, in conjunction with the **"CaaS Service"**, facilitates event-based delivery of project contents. Configuration is done on the project level. If a fragment project is to offer its contents via FirstSpirit CaaS, the **project component "CXT CaaS Integration Configuration"** must be configured with the URL of the CaaS server and with the appropriate API key. Here, two separate CaaS instances are required, one for preview data and one for live data (see illustration).

Following this configuration, contents from the fragment project are output based on events:

- upon change: into one CaaS instance (preview)

- upon release: into another CaaS instance (live)

The exchange of fragments between FirstSpirit CXT and FirstSpirit CaaS is carried out using JSON (JavaScript Object Notation). The output channel of the project must be configured accordingly.

Example for output of fragments/variants in JSON:

```
{
    "fragmentUUid": "$CMS_VALUE(#global.page.parent.uid.replaceAll("_","-"))$",
    "documentUUid": "$CMS_VALUE(#global.page.uid.replaceAll("_","-"))$",
    "variation": $CMS_VALUE(#global.page.meta("variations").toJSON())$,
    "title": $CMS_VALUE(#global.page.meta("title").toJSON())$,
    "text": $CMS_VALUE(text.toHtml().toJSON())$,
    "url": "$CMS_VALUE(url)$"
}
```

For further information, see documentation "Content Experience Tools".

64.4 Delivery of fragments and variants via FirstSpirit CaaS (Content-as-a-Service) (by schedule entry) 2019-01

The module "CaaS Integration for CXT" enables delivery of a fragment project's content via the universal FirstSpirit CaaS interface so that it may be obtained by various frontends (classical web pages, mobile apps, web shops, digital signage, social media, single-page applications, portals) via pull principle.

CXT CaaS Integration
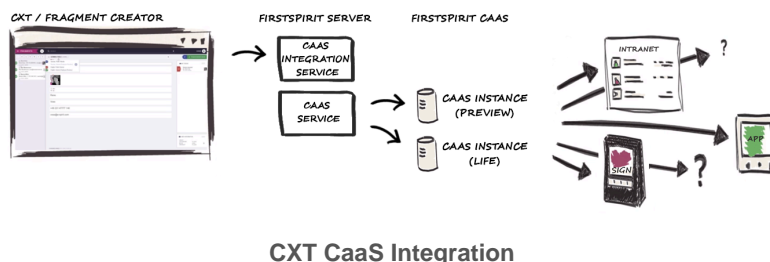
In addition to the event-based transfer of content from a fragment project (see "Delivery of fragments and variants via FirstSpirit CaaS (Content-as-a-Service)"), it is now also possible to publish the entire content of a fragment project (using a schedule entry script) directly via FirstSpirit CaaS.

Two executables are available for this (for deployment on the Live CaaS server and the Preview CaaS server):

- `cxt-caas-integration-full-live-deployment-executable`
  (provides all released content)

- `cxt-caas-integration-full-preview-deployment-executable`
  (provides all changed content)

The deployment into the two CaaS instances is executed using a schedule entry.

Configuration:
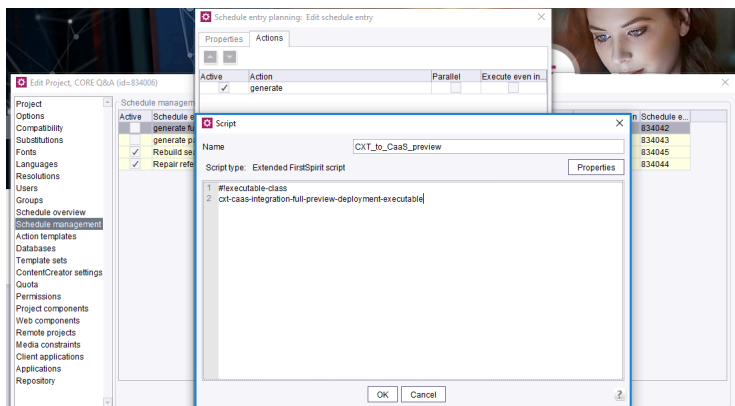
Configuration CaaS integration (schedule entry)

A new default schedule entry is created under "ServerManager" - "Project properties" - "Schedule management". A new action is created within each job ("Actions" - "Add" - "Execute script"). The corresponding executables are added to these scripts (e.g. `cxt-caas-integration-full-preview-deployment-executable` for providing the project contents on the preview CaaS server).

When the schedule entry is executed, the project contents from the fragment project are made available for publishing on the configured CaaS server. The exchange of fragments between FirstSpirit CXT and FirstSpirit CaaS is carried out using JSON (JavaScript Object Notation). The output channel of the project must be configured accordingly.

For further information, see documentation "Content Experience Tools".

64.5   Releasing or deleting multiple variants of a fragment at the same time   2018-12

Editors are now given the option to request release or deletion of all suitable variants of a fragment at the same time.

The according workflows can be called via the variant selection icon of a fragment.
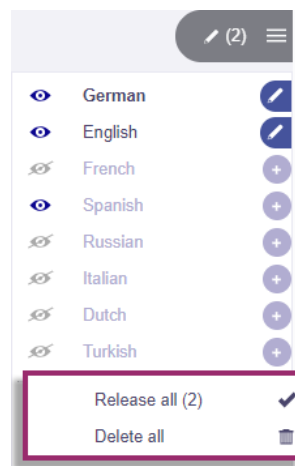
Below the list of all available variants of the current fragment, the list now includes options to call one of the two standard workflows, "Release" and "Delete".

The following starting conditions are possible:

- All variants of a fragment should be released:
    - clicking **Release all** starts the release process for *all* variants.

- All changed variants of a fragment should be released:
    - clicking **Release changed** starts the release process for all *changed* variants.

- All variants of a fragment (and thus the fragment as a whole) should be deleted:
    - clicking **Delete all** starts the deletion process for *all* variants.

64.6 "FirstSpirit Media DAP" and "FirstSpirit Fragment DAP" module updates 2019-01

"FirstSpirit Content Experience Tools" (CXT) enables media (from specific FirstSpirit projects) as well as fragments from other projects to be referenced. The "FirstSpirit Media DAP" (`mediadap-[version].fsm`) or "FirstSpirit Fragment DAP" (`fragmentdap-[version].fsm`) modules are used for this purpose. Each module contains data access plug-ins ("DAP").

With FirstSpirit 2018-12, new interfaces were created in the FirstSpirit Access API which can be used to identify references between objects in FirstSpirit (or to objects outside of FirstSpirit) (CORE-9722). With FirstSpirit 2019-01, the "FirstSpirit Media DAP" and "FirstSpirit Fragment DAP" modules were converted to this new API to ensure sustainability and consistency.

If one or both of the modules have already been used in an earlier FirstSpirit release, it/they must be updated with the current release.

For more information, see Documentation for "FirstSpirit Content Experience Tools (CXT)",

- "Installation / Installing modules (ServerManager) / Fragment DAP"

- "Installation / Installing modules (ServerManager) / Media DAP"

Note: The `REMOTEPROJECT` license is required to use the aforementioned modules.

64.7 Visualization of validation problems 2018-11

Depending on the project configuration, validation problems (rule violations, recommendations for filling out input components...) can be shown in FragmentCreator.
Validation problems can occur for example, if a required input component was not filled out, if more characters were entered in a text input component than allowed or if input was made that is faulty content-wise or formally.
If an input component is affected by validation problems is shown prominently in the right-hand area of FragmentCreator as of the current release – in addition to already existing borders:
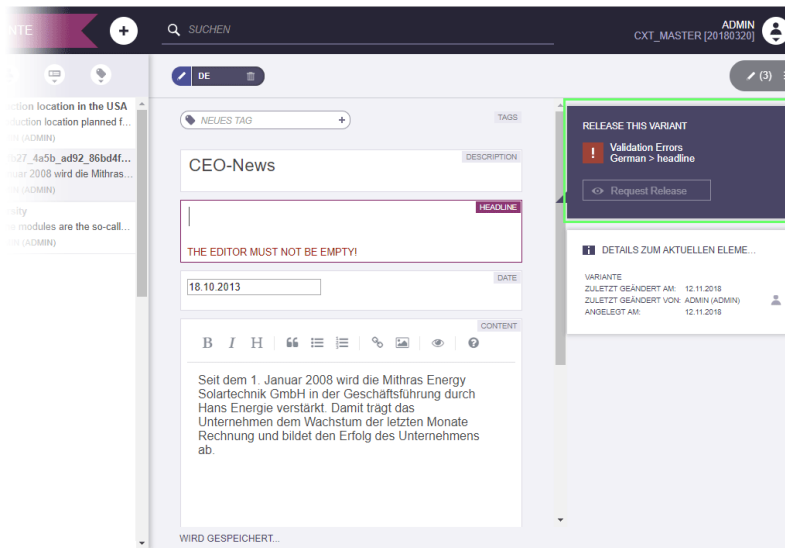
The affected language/s and input components are listed in the new box.

If there are validation problems for a variant, no workflow can be started or forwarded on this variant. When clicking on a action button, a corresponding error message appears.

65   Compatibility

65.1   Downgrade to FirstSpirit 5.1 when using Berkeley DB V5 `5.2R3`

It is possible – in principle – to downgrade from one FirstSpirit minor version to another (for example from FirstSpirit version 5.2 to FirstSpirit version 5.1), but this is **not an assured product property**. Use of Oracle Berkeley DB version 5 as a repository for content storage ("FirstSpirit ServerManager / Project Properties / Repository / Backend") can lead to problems when downgrading from FirstSpirit version 5.2 to FirstSpirit 5.1.

In order to downgrade a FirstSpirit server--which has initially been installed with a FirstSpirit version lower than 5.2 and now uses FirstSpirit version 5.2 as well as Berkeley DB version 5--to FirstSpirit version 5.1, the repository of each project must be configured to use Berkeley DB version 3 before conducting the downgrade.
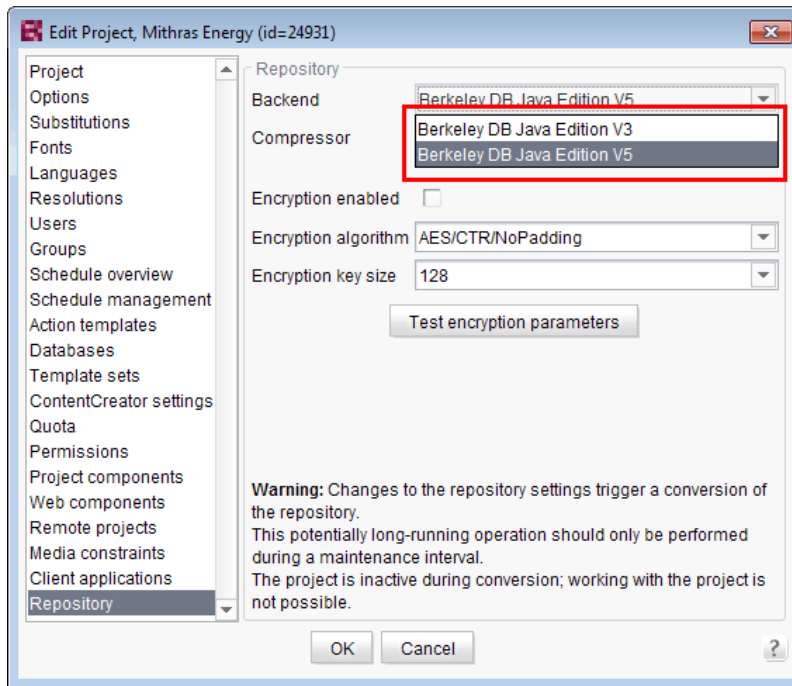
This only applies to servers which have initially been installed with a FirstSpirit version lower than 5.2. A downgrade of servers initially installed with FirstSpirit version 5.2 to a lower version is not possible.

For further information about selecting the desired Berkeley DB version, see *FirstSpirit Manual for Administrators*, chapter "Repository".

66   Media

66.1   Optimized identification of file format of media uploaded via drag-and-drop   5.2R4

Upload of media into the Media store can be limited to certain file formats via the option "Restrict allowed media types" in project settings ("FirstSpirit ServerManager / Project settings / Media constraints").
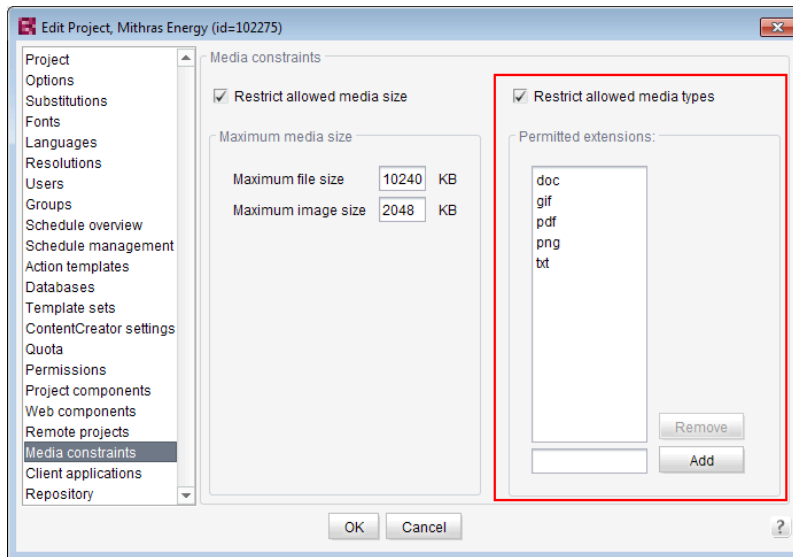
File format identification is done by both inspecting the file name extension and analyzing the file contents. This identification check has been optimized in FirstSpirit version 5.2R4.

Furthermore, when uploading media files into a project via drag-and-drop, a more differentiated error message will be shown if a file cannot be uploaded due to its file type, indicating whether the file type is not supported or not allowed.

For further information about this option, see

- *FirstSpirit Manual for Administrators*, chapter "Restrict allowed media types"

66.2 Recoginition of file types when uploading media using drag-and-drop improved 5.2R6

Media from the workstation's local file system can be dragged directly into the Media Store of the FirstSpirit project by means of drag-and-drop. The file type is recognized automatically by FirstSpirit. Starting with the current FirstSpirit version this applies also for the following Mime types now:

- `.ascx` (file type in FirstSpirit: "text/plain")

- `.jar` (file type in FirstSpirit: "application/zip")

- `.xsd` (file type in FirstSpirit: "text/xml")

66.3   Support for files with more than one dot character in their names

5.2R5

FirstSpirit now supports upload, saving and deployment of media which contain more than one dot in their file names.

This enables upload of files of type ".tar.gz", for example. In the example "filename.tar.gz", the part "gz" will be considered the file name extension, while "filename.tar" will be considered the file name of the medium. This also affects the search settings in SiteArchitect (limiting search results via facets): in search results filtered for file name extension, a file of type ".tar.gz" will be displayed associated with the file name extension "gz" (not "tar.gz"). This must also be considered when defining "Permitted extensions" on the "Media constraints" page of project settings in FirstSpirit ServerManager.

This new functionality is supported in ContentCreator and in SiteArchitect when uploading or creating files via media management functionality as well as via the input component FS_REFERENCE. Besides files of type ".tar.gz", use cases include files which carry version information in their names such as "Linux_4.6.4-1.debian.tar.xz".

67   Module Development, Scripts, API

67.1   "Isolated mode" is released   2019-02

The main goal of the "Isolated mode" of the FirstSpirit server is to give developers of modules greater freedom in selecting the libraries they use. Especially the potential conflicts with libraries supplied by the FirstSpirit core should be hereby minimised.

With the current release the "Isolated mode" is released.

- As of this release, **new** FirstSpirit servers should be installed using the installation archive `fs-install-[version].tar.gz`. When using this archive, the server is installed in "Isolated mode" by default. If modules are used, they should be Isolated-capable in order to ensure smooth operation.

- **Existing** FirstSpirit modules that have not yet been converted to "Isolated mode" are still executable.
  If these contain a web component that uses libraries that are not available in the module, it may be necessary to use the Compatibility module until the module is migrated to "Isolated mode".

No other adjustments are necessary in the short term. In the medium term, however, all resources in modules should be adapted to the new conditions in order to benefit from the advantages of "Isolated mode".

"Legacy mode" will be dropped in the medium term, all modules and servers should be converted by then. Before the "Legacy mode" is dropped, this will be announced at an early stage.

For more information please see FirstSpirit Manual for Module Developers, Chapter "Isolated mode" (or on local FirstSpirit servers in the online help in the left-hand navigation bar under "Manual for Module Developers (Beta)").

If you require assistance with the migration, please contact e-Spirit Technical Support. There you will also get access to the "FSM Dependency Checker" tool, which can be used to analyse internal and external dependencies of existing FirstSpirit modules.

67.2 Discontinuation ("Deprecation") of methods for the "Content2" interface 5.2R2

The following methods in the `Content2` (FirstSpirit Access API, `de.espirit.firstspirit.access.store.contentstore` package) have been discontinued in FirstSpirit version 5.2R2 ("Deprecation") and can be omitted in the next FirstSpirit major version (6.0).

- `delete(Entity entity)`
  [Replacement: `StoreElement.delete()`
  Package `de.espirit.firstspirit.access.store`, Interface `StoreElement`]

- `isLocked(Entity entity)`
  [Replacement: `StoreElement.isLocked()`
  Package `de.espirit.firstspirit.access.store`, Interface `StoreElement`]

- `isLockedOnServer(Entity entity, boolean allSessions)`
  [Replacement: `StoreElement.isLockedOnServer(boolean)`
  Package `de.espirit.firstspirit.access.store`, Interface `StoreElement`]

- `lock(Entity entity)`
  [Replacement: `Dataset#setLock(true)`
  Package `de.espirit.firstspirit.access.store`, Interface `StoreElement`]

- `release(Entity entity)`
  [Replacement: `IDProvider.release()`
  Package `de.espirit.firstspirit.access.store`, Interface `IDProvider`]

- `release(Entity entity, String comment)`
  [Replacement: `IDProvider.release()`
  Package `de.espirit.firstspirit.access.store`, Interface `IDProvider`]

- `unlock(Entity entity)`
  [Replacement: `Dataset#setLock(false)`
  Package `de.espirit.firstspirit.access.store`, Interface `StoreElement`]

Methods set to the "deprecated" state can still be used, but as they will be omitted in subsequent versions, this is not advisable. If methods, classes, and interfaces that are no longer supported or are set to deprecated are used in scripts and/or modules, entries are written to log files accordingly (e.g., server log, generation log, etc.). The corresponding log entries should be checked and the cause(s) remedied.

For more information and replacement options, see *FirstSpirit Access API*.

67.3   Update of Web Applications 5.2R4

In its default configuration, a FirstSpirit server uses the integrated Jetty software as HTTP server and servlet engine. If Jetty is deactivated (`INTERNAL_SERVLET_ENGINE=0` in the file `fs-server.conf`), the local FirstSpirit web directory was not updated during an in-place update of the FirstSpirit server software. If this web directory was also used by another web server, this caused the software versions used by this web server to become outdated. As of FirstSpirit version 5.2R4, during every update of the FirstSpirit server software, the necessary roll-out of the web applications it contains will take place even if Jetty is deactivated.
Moreover, entries of web applications in the file `fs-webapp.xml` whose directories do not exist will be ignored during server start-up. This does not affect FirstSpirit's own web applications.

For further information, see *FirstSpirit Manual for Administrators*, chapters

- "Web server configuration (fs-webapp.xml)"

- "Web server"

67.4   General information 5.2R2

It is recommended for all FirstSpirit server updates to newly create all self-produced modules vis-a-vis the new FirstSpirit version, when upgrading to FirstSpirit version 5.2R2, particularly when using the *PreviewParameter* interface (*de.espirit.firstspirit.client.mpp* package). In addition to this, all the installed modules delivered by e-Spirit and all web applications should also always be updated.

67.5   Changes to GOM implementation class "GomButton" 5.2R14

In the GOM implementation class `GomButton`, the type of the attributes `onClick` and `onDrop` has been changed from `String` to `GomButtonScriptReference`. Programmatic uses of this class may require modifications to their source code in order to observe this type change.

67.6   API Extension: RenderingAgent - Generating FirstSpirit content via API 5.2R15

FirstSpirit content may be generated via the interface `RenderingAgent` (package: `de.espirit.firstspirit.agency`, FirstSpirit Developer API). This allows for control of individualized generation of specific dynamic content directly via the API.

Example:

```
import de.espirit.firstspirit.agency.RenderingAgent;
import de.espirit.firstspirit.access.store.IDProvider
IDProvider node = ..;
String content = context.requireSpecialist(RenderingAgent.TYPE).createRenderer(node)
    .templateSet("html")
    .language("EN_US")
    .preview()
    .render();
```

The example returns the generated content for the node passed to the specialist object.

Supported FirstSpirit object types:

- Page

- Section

- PageRef

- Dataset (including subclasses)

- parsed media

67.7   Reacting to page navigation events in ContentCreator 5.2R13

ContentCreator provides a JavaScript API which allows control of some aspects of the user interface and the preview. This API's `Common` object has been extended with the method `addPreviewElementListener(PreviewElementListener listener)`. The listener receives events pertaining to changes of the current preview element in ContentCreator. If a page navigation event is detected, the listeners' `onChanged(FSID)` function will be called. Depending on the current preview element, the FSID of the page reference or the FSID of the content projection will be passed as a parameter.

This API is accessed via the JavaScript object `top.WE_API`. The API can be used in preview HTML as well as in JavaScript-based actions (e.g. InlineEdit buttons or report actions). Additionally, the JavaScript API for ContentCreator can be used from within FirstSpirit scripts and executable classes by using a specialized operation (see *Template development / JavaScript APIs / ContentCreator* (→*FirstSpirit Online Documentation*)).

Example:

```
<script type="text/javascript">
  function handlePageReload(fsid) {
    if (fsid.getContentId() != -1) {
      // Page is based on a dataset
      console.log("This page is based on a dataset with contentID "
                    + fsid.getContentId() + " and content2ID " + fsid.getContent2());
    } else {
      // Page is based on a "normal" Pageref
      console.log("This page has the pagerefID " + fsid.getPageref());
    }
  }
  // Register function "handlePageReload" as a page reload listener
  top.WE_API.Common.addPreviewElementListener(handlePageReload);
</script>
```

67.8 Schedules: Creating and configuring an archival schedule action via API (de.espirit.firstspirit.access.schedule.ProjectCleanupTask) `5.2R9`

By using the schedule action "Archive old project states" (FirstSpirit ServerManager / Project properties / Schedule management / Add / Actions) it is possible to swap out files which are not longer required (automatically and regularly at a defined point in time), therefore increasing the performance of the FirstSpirit server.

Until now it was only possible to create and configure such a schedule using the graphical interface. With the current version of FirstSpirit, this can also be achieved by using the API. For this purpose the interface `ProjectCleanupTask` in the package `de.espirit.firstspirit.access.schedule` has been added (FirstSpirit Developer API).

67.9 Ouput format of function "previewId(..)" changed `2018-08`

The output format of the generation function `previewId(..)` has been changed. We recommend to update the data stored in the Preview-CaaS with version FirstSpirit 2018-08.

67.10 Handling dependent modules `5.2R2`

It is possible to define dependencies between FirstSpirit modules. This takes place using the entry

```
<dependencies>
     <depends>modulname</depends>
</dependencies>
```

in the `module.xml` file for the dependent module ("child").

With FirstSpirit version 5.2R2, both those modules which contain a `<dependencies><depends>` specification ("child"), and those referenced by this specification ("parent") are uninstalled from the FirstSpirit Server ("Uninstall" button) – even if the dependent module is no longer available on the server. "child" modules whose "Parent" module is no longer on the server are visualized in the FirstSpirit ServerManager ("Server properties / Modules") with an appropriate icon:
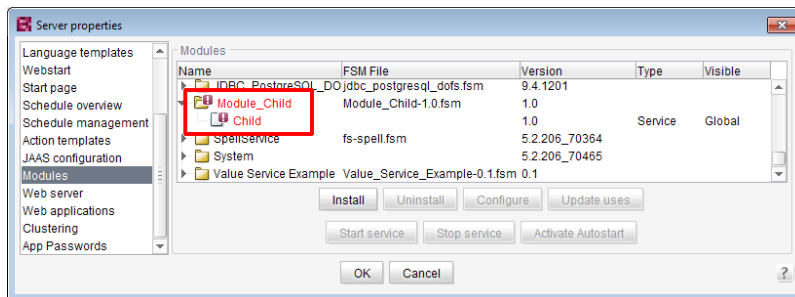
A tool tip lists the names of the missing dependent modules.

It is possible to use the newly implemented `isActive` method (FirstSpirit Developer API, `ModuleAdminAgent` interface) in this context to check whether a module has missing references to other modules.

For more information, see

- *FirstSpirit Developer Manual for components (German only)*, chapters "Modul-Ereignisbehandlung" and "Der Modul-Deskriptor"

- *FirstSpirit Manual for Administrators*, chapter "Module"

- *FirstSpirit Developer API*, `ModuleAdminAgent` interface (`de.espirit.firstspirit.agency` package)

67.11 Examples for integration of external data sources using generic DataAccessPlugins 5.2R5

As of FirstSpirit version 5.2R5, source code packages are available that contain example modules for integration of external data sources in FirstSpirit using generic DataAccessPlugins. These modules allow integration of web services that use Open Data Protocol (OData) and Simple Object Access Protocol (SOAP), respectively, as data sources for FS_INDEX input components, i.e. such data sources become usable without creating own Java implementations.

Manuals for compilation, installation, configuration, and use of the modules are available in *FirstSpirit Online Documentation*, chapter "Plug-In Development / Examples / Modules: Accessing Web Services via OData/SOAP".

67.12 ContentCreator JavaScript API "WE_API": FSID can now work with language dependency 2018-09

In the ContentCreator JavaScript API "WE_API", the FSID object was extended to include a project language (parameter `language`).

This FSID object is used by the WE_API to represent a FirstSpirit store element. For example, the JavaScript call

```
WE_API.Common.setPreviewElement({id: 74656, store: "sitestore", language: "DE"})
```

loads the structure element with ID 74656 and with the project language German in the preview. For this, the function `setPreviewElement` accepts an FSID parameter which is formatted as a JSON string.

The parameters supported by the FSID object are listed in the FirstSpirit API documentation: interface `FSID` in package `de.espirit.firstspirit.webedit.client.api` (FirstSpirit Developer API).

The new API can be used in *FirstSpirit Omnichannel Manager* (TPP), for example, to work with language-dependent objects.

67.13 ContentCreator: Modify view of the dialog "Manage media" (de.espirit.firstspirit.webedit.plugin.media) `5.2R7`

By using the package `de.espirit.firstspirit.webedit.plugin.media` (FirstSpirit Developer API) it is possible to implement project-specific extensions for the dialog "Manage media" in the ContentCreator.

The new methods in the interface `MediaManagementContext`

- `refresh()` it is possible to refresh the view of the dialog (e.g. when a new medium has been added)

- `show(MediaFolder folder)` it is possible to display a specific folder.

67.14 ContentCreator: Opening the "Edit image section" dialog via API `5.2R5`

Image sections (crops) of media elements of type "Picture" may be edited in ContentCreator using a specialized dialog:
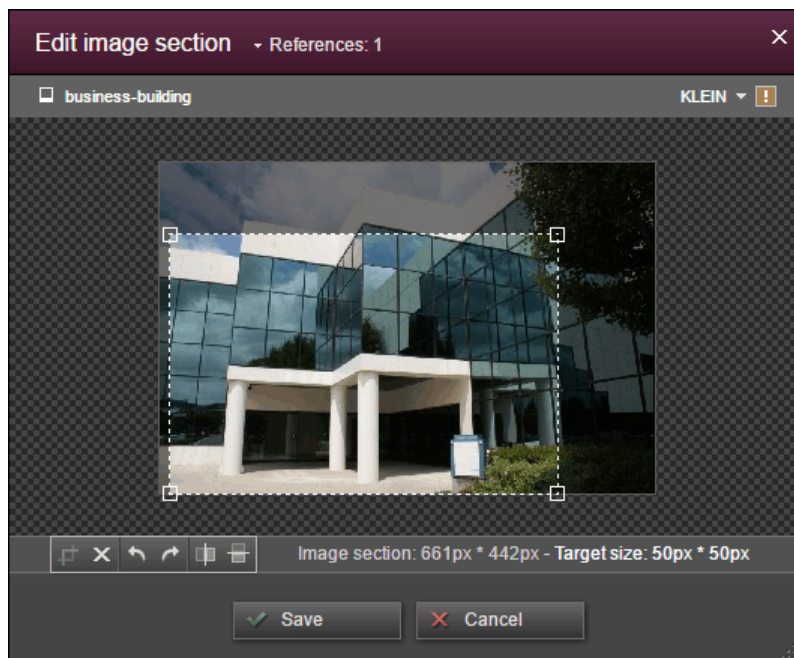
As of the current FirstSpirit version, this dialog may now be opened via the FirstSpirit Developer API:

```
de.espirit.firstspirit.webedit.server.CropDialogOperation
```

The parameter `media` passed to the method `setMedia(Media media)` specifies the media element which should be edited.

The parameter `resolutions` passed to the method `setResolutions(List<Resolution> resolutions)` contains resolutions of the image which should be available for editing in the dialog. If this list contains no resolutions or only resolutions which are unknown within the current project, all resolutions specified in the project, with the exception of the resolution "ORIGINAL", will be made editable. If the list contains several other resolutions along with "ORIGINAL", the resolution "ORIGINAL" will be ignored and not made available for editing.

The following example script ("cc_crop") opens the image section dialog if an image is dropped onto an accordingly configured FS_BUTTON input component in the preview.

```
import de.espirit.firstspirit.agency.LanguageAgent;
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.agency.ResolutionAgent;
import de.espirit.firstspirit.agency.TransferAgent;
import de.espirit.firstspirit.access.store.IDProvider;
import de.espirit.firstspirit.access.store.mediastore.Media;
import de.espirit.firstspirit.webedit.server.CropDialogOperation;
if (dropdata == null) {
      return false;
}
transferAgent = context.requireSpecialist(TransferAgent.TYPE);
elements = dropdata.get(transferAgent.getType(IDProvider.class));
if (elements == null || elements.isEmpty()) {
      return false;
}
media = elements.get(0);
if (media == null || !(media instanceof Media) ) {
      return false;
}
languageAgent = context.requireSpecialist(LanguageAgent.TYPE);
lang = null;
for (language : languageAgent.getLanguages().iterator()) {
      if ("EN".equals(language.getAbbreviation())) {
            lang = language;
      }
}
resolutionAgent = context.requireSpecialist(ResolutionAgent.TYPE);
resolutions = new ArrayList();
resolutions.add(resolutionAgent.getResolutionByName("Teaser"));
resolutions.add(resolutionAgent.getResolutionByName("HeaderPicture"));
operations = context.requireSpecialist(OperationAgent.TYPE);
operation = operations.getOperation(CropDialogOperation.TYPE);
operation.setMedia(media);
if (lang != null && media.isLanguageDependent()) {
      operation.setLanguage(lang);
}
operation.setResolutions(resolutions);
operation.perform();
```

Example configuration of the FS_BUTTON input component:

```
<FS_BUTTON
        name="pt_cropButton"
        hidden="yes"
        onDrop="script:cc_crop"
        style="firstspirit"
        useLanguages="no">
    <DROPTYPES>
        <TYPE value="picture"/>
    </DROPTYPES>
    <LANGINFOS>
        <LANGINFO lang="*" label="Crop a Picture"/>
    </LANGINFOS>
</FS_BUTTON>
```

Example for HTML output:

```
<span$CMS_VALUE(fsbutton(editorName:"pt_cropButton"))$></span>
```

If a media element that is of type `File` or is an object of type `Picture` which does not contain image data is passed to the method `setMedia(Media media)`, according exceptions will be logged to the file `fs-server.log`, and the image section dialog will not be opened.

For further information about image section editing in ContentCreator, see *FirstSpirit Manual for Editors (ContentCreator),* chapter "Editing a preview page / Media", section "Edit image sections".

67.15 ContentCreator: Detection of the user interface language ("Locale") selected by the current user 5.2R7

FirstSpirit supports a multi-language concept that pervades all aspects of FirstSpirit. This concept differentiates between:

■ **User interface language (also called "Locale"):** This language is selected via the combobox on the FirstSpirit Start Page. It specifies the language commonly used in the user interface, such as that of menu labels, dialog texts and content that is not maintained in a language-dependent fashion by editors and template developers in a project. Currently, FirstSpirit supports the user interface languages German, English, French, Spanish, Russian, Italian, and Dutch.

- **Project language:** Project developers specify in which languages editorial content may be entered (via "input components"). As a rule, this content will then be output on a web page in the various language variants of a page. A language selection control may be used to switch to another language of the web page. The project language may differ from the selected user interface language: FirstSpirit does not provide Portuguese as a user interface language, but Portuguese-language content can of course be maintained within FirstSpirit.

- **Editorial language:** An editorial language (also called "display language") may be used by project developers to influence the display of input elements and other objects in ContentCreator. Such editorial languages are used for labels of input components, tool tips, and elements of a selection list ("combobox"), among others.

As of the current FirstSpirit version, it is possible to detect the user interface language of ContentCreator, selected by the current user, via the method `getLocale()` of the FirstSpirit Developer API interfaces

- `WebeditUiAgent` (package `de.espirit.firstspirit.webedit`):
  `de.espirit.firstspirit.webedit.WebeditUiAgent.getLocale()`

- `Common` (package `de.espirit.firstspirit.webedit.client.api`):
  `WE_API.Common.getLocale()`

For further information, see *Template development / JavaScript APIs / ContentCreator / Common Functionality* (→*FirstSpirit Online Documentation*).

67.16 ContentCreator: Extended configuration possibilities for information displays (WE_API) `5.2R15`

FirstSpirit provides a JavaScript API (`WE_API`) which allows interaction with the user interface of ContentCreator. This API has been extended for information displays:

- `Common (package de.espirit.firstspirit.webedit.client.api):`
  `WE_API.Common.showMessage(String title, String text)`

Already available: `void showMessage(String text)` displays a simple message box with an "OK" button which supports configuration of only the message box text. The message box will always be shown as an information message. The button configuration cannot be changed.

Newly available: the function `void showMessage(String title, String text)` supports configuration of the message box title in addition to configuration of the message box text.

Example:

```
<script type="text/javascript">
    top.WE_API.Common.showMessage("Important message:", "I am a sample message box.");
</script>
```

67.17 ContentCreator: Using dropdown menus via API 5.2R5

The newly-added interface `SelectOptionOperation` (FirstSpirit Developer API, package `de.espirit.firstspirit.webedit.server`) allows developers to use a lightweight dropdown menu for selection of a value within the ContentCreator preview, e.g.

In this example, the dropdown menu appears upon clicking an FS_BUTTON input component rendered in the preview ("Select an option") and configured as follows:

```
<FS_BUTTON
        name="pt_selectOption"
        hidden="yes"
        onClick="script:cc_select_operation"
        style="firstspirit"
        useLanguages="no">
    <LANGINFOS>
        <LANGINFO lang="*" label="Select an option"/>
        <LANGINFO lang="DE" label="Wählen Sie eine Option"/>
    </LANGINFOS>
</FS_BUTTON>
```

The dropdown menu allows selection among options 1 through 5. These options can be added to the dropdown using the method `SelectOptionOperation#addOption(String label, String value)`. Every single call to this method can add one item to the dropdown menu, where `String label` is the human-readable label shown in the menu and `String value` represents the internal value.

Example script ("cc_select_operation"):

```
import de.espirit.firstspirit.webedit.server.SelectOptionOperation;
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.ui.operations.RequestOperation;
operations = context.requireSpecialist(OperationAgent.TYPE);
operation = operations.getOperation(SelectOptionOperation.TYPE);
operation.addOption("Option 1", "1");
operation.addOption("Option 2", "2");
operation.addOption("Option 3", "3");
operation.addOption("Option 4", "4");
operation.addOption("Option 5", "5");
selection = operation.perform();
if (selection != null) {
    request = operations.getOperation(RequestOperation.TYPE);
    request.perform("Your selection: " + selection);
}
```

Once the user selects an item in the dropdown list, this selection is then output in a dialog.

The FS_BUTTON can be rendered in the preview using the function `fsbutton(...)`:

```
<span$CMS_VALUE(fsbutton(editorName:"pt_selectOption"))$></span>
```

See also *Plug-In Development / ContentCreator Extensions / Interactive Features / Selection Lists* (→*FirstSpirit Online Documentation*).

67.18 ContentCreator: Displaying page-related status information prominently `5.2R6`

At the left end of the ContentCreator toolbar, the page status display provides information about the status of the page currently shown in the preview and allows users to perform actions based on that status. For better organization, these actions are only made available in a flyout that is shown once the user hovers the mouse pointer over the page status display.

Page-related status information that is especially important for the editorial process may now be added via a new plugin type using the FirstSpirit API. This information will be displayed prominently in the ContentCreator user interface:
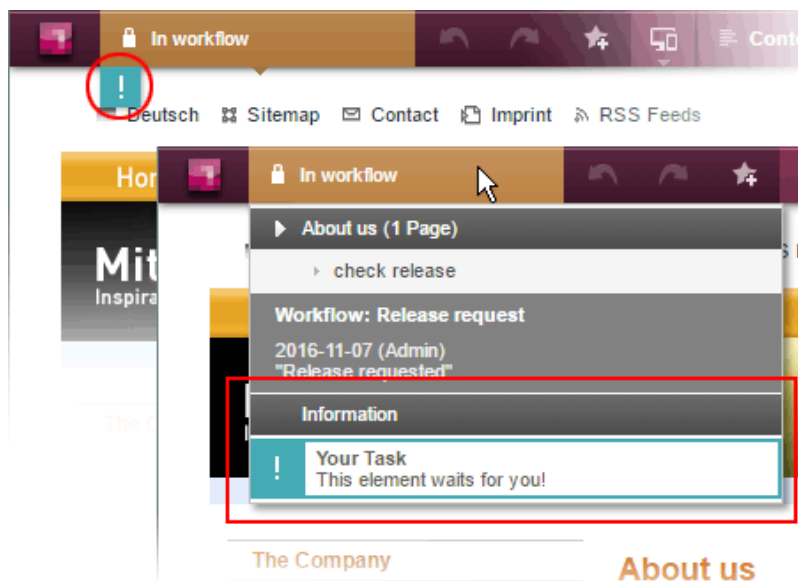
In this example, an entry is added to the status menu if the current page is in a workflow. Additionally, a prominent "!" icon will be displayed underneath the page status display if the user has been explicitly set as an editor in the workflow. This example is implemented in the "ContentCreator Examples", available as a source code package in *FirstSpirit Online Documentation*, chapter "Plug-In Development / Examples".

The basis for this plugin is the interface `WebeditStatusNotePlugin` (FirstSpirit Developer API, package `de.espirit.firstspirit.webedit.plugin.status`). Based on information about the

currently shown page, given by a `WebeditStatusNoteContext` object, the status note plugin delivers a list of `WebeditStatusNote` objects.

`WebeditStatusNote` objects can be created via a `WebeditStatusNoteBuilder` object that may be obtained by calling `WebeditStatusNoteContext#createNote`.

Using such a `WebeditStatusNoteBuilder` object, the following attributes of a `WebeditStatusNote` may be configured before creating the note object (example data is based on the above illustration):

- title (e.g. "Your Task")

- text (e.g. "This element waits for you!")

- icon (e.g. an exclamation mark)

- color (e.g. teal)

- related actions

In order to ensure a consistent design, the color must be chosen from a color palette given in the `Enum WebeditColor` (package `de.espirit.firstspirit.webedit`).

For further information, see *FirstSpirit Manual for Editors (ContentCreator)*, chapter "Menu functions / Page status", and *Plug-In Development / ContentCreator Extensions / Interactive Features / Page-Based Notifications* (→*FirstSpirit Online Documentation*).

67.19 ContentCreator: Use of "setTitle" for a dialog's main title `5.2R7`

The interface `ShowFormDialogOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API) allows creation and configuration of project-specific dialogs for both SiteArchitect and ContentCreator.

In ContentCreator, the title text that may be set for such a dialog via the method `setTitle(String title)` is now also used for the dialog's main title (berry-colored background), e.g.
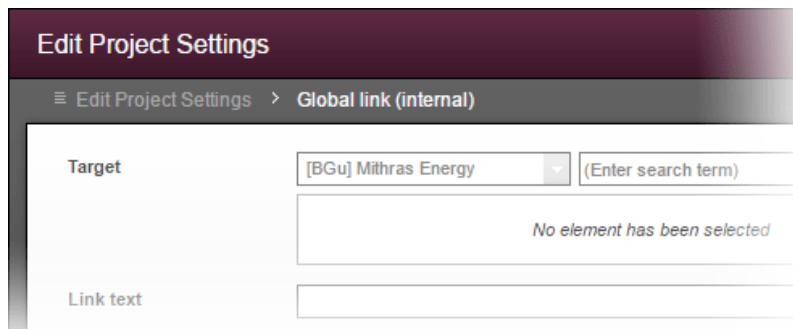
Previously, the title text was only used in the dialog's secondary labeling (grey background), and the main title text could not be influenced:

67.20 DataAccess plug-in: Implementing access control for data `2018-08`

The FS_INDEX input component is used to integrate external components or modules that need to make data available to the input component. The data is made available via a "DataAccess plug-in". This data can then be selected, i.e., referenced, with FS_INDEX. Both the function and appearance are highly dependent on the individual implementation of the plug-in. A "DataAccess plug-in" is implemented via the

- `de.espirit.firstspirit.client.plugin.dataaccess`

- `de.espirit.firstspirit.client.plugin.dataaccess.aspects`

- `de.espirit.firstspirit.client.plugin.dataaccess.aspects.transfer`

packages from the FirstSpirit Developer API.

With the latest FirstSpirit release, access control can be implemented for the data from the "DataAccess plug-in". For example, if there is no connection to a service that is linked via the "DataAccess plug-

in", a corresponding message can be displayed for the editor. Similarly, an interactive dialog can be implemented to prompt the user to take action before the "DataAccess plug-in" and/or its data can be displayed and used, e.g., by entering login data.

The new

```
DataAccessControlling
```

(`de.espirit.firstspirit.client.plugin.dataaccess.aspects.DataAccessControlling` package) has been implemented for this purpose. It supports the following methods:

- `verifyAccess()`: Checks if access to the "DataAccess plug-in" data is possible. The result of the check (yes / no) is visualized through a status display containing a corresponding symbol and text that can be freely selected (in the example below: (1), "No access!" or (3), "Access granted"). If access is not granted, the content of the integrated plug-in is not displayed and cannot be selected. If access is granted, content from the plug-in can be displayed and selected.

- `requireAccess(context)`: Requires access to the data. Depending on the execution context (*context*, see below), interactive operations might also be possible (in the example below: dialog box (2)).

- `getAcquireAccessLabel()`: Provides a display text ("label") for actions that trigger an access request. If the plug-in does not supply a corresponding display text, a default text is used (in the example below: (1), "Require access").

The `requireAccess` method is called up wherever the "DataAccess plug-in" is accessed, e.g., when clicking on a corresponding report or when displaying or selecting data in an FS_INDEX input component.

To facilitate a more detailed evaluation of the execution context, new environment values have also been introduced for the `BaseContext` interface (`de.espirit.firstspirit.access` package, FirstSpirit Developer API):

- `GENERATION`: Execution during generation

- `ARCHITECT`: Execution in SiteArchitect

- `MANAGER`: Execution in ServerManager

- `FORM`: Execution in an input component

- `REPORT`: Execution in a report

The `ARCHITECT` and `MANAGER` execution contexts, along with the `WEBEDIT` execution context that was available in earlier versions of FirstSpirit (ContentCreator) support interactive questioning of the user (dialog). Except that the execution context also contains `HEADLESS` as environment value.

New display options / functions have been added to the FS_INDEX input component and the report area for this purpose. They can be used if the `DataAccessControlling` aspect is implemented in the "DataAccess plug-in", e.g.:
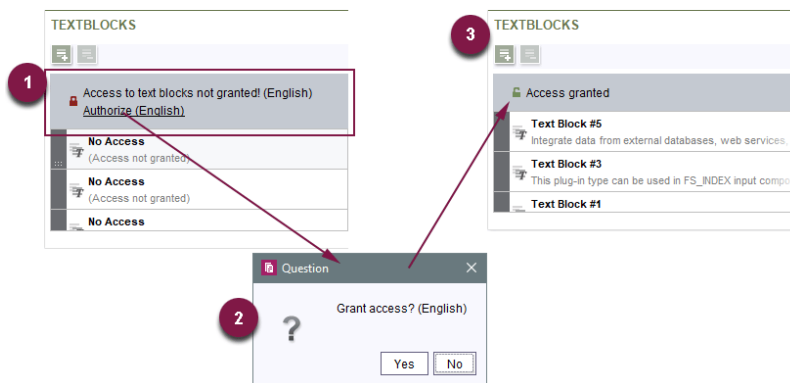
If access permission is granted, it is only valid for that particular context, e.g., only for the report or the input component. This should be taken into account when implementing the plug-in. If access control is required for displaying content in the preview, this must also be taken into account in the implementation of the plug-in itself.

For more information, see *FirstSpirit Online Documentation*, "Plug-in development / Universal enhancements / Data access".

67.21 Data Access Plugins (DAP): Advertising references 2018-12

By implementing "data access plugins" ("DAP"), external sources (e.g. web services) can be connected to an FS_INDEX input component. This way, data objects from such external sources can be referenced within the index component and thus used for content purposes. Some fundamental

FirstSpirit functionality is based on such data access plugins, e.g. the "DatasetDataAccessPlugin" used for selection of datasets from data sources of a project. Data access plugins can also be used to implement customer- and project-specific functionality.

Dependencies between objects in FirstSpirit (or to objects external to FirstSpirit) are also called "references". The datasets selected for inclusion in an FS_INDEX component by way of the DatasetDataAccessPlugin, for example, hold "inbound" references from the FS_INDEX component. Such dependencies are visualized in the "FirstSpirit reference graph" (Ctrl + R):
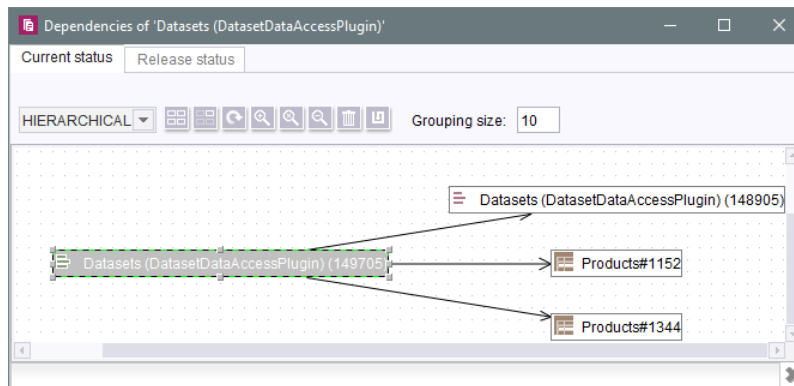
In order to avoid inconsistencies, these references are checked, for example, before objects are deleted from a FirstSpirit project. Furthermore, references may be used to carry out "dependent releases". These functionalities are provided by the FirstSpirit reference manager.

As of the current release, developers can advertise outbound references of data access plugins and thus use the functionality of FirstSpirit's reference manager.

The FirstSpirit Access API package `de.espirit.firstspirit.client.plugin.dataaccess.aspects` provides the aspect interface

```
ReferencesReporting
```

This aspect may be used by the data access plugin to submit references.

References are divided into two categories, each of which requires a separate method:

- `reportValueReferences`

is used for references to values which are selected/saved by the editor within the data access plugin, e.g. FirstSpirit objects or external elements. In the case of the DatasetDataAccessPlugin, these are the datasets selected via FS_INDEX.

- `reportModelReferences`
  is used for references to FirstSpirit objects which are used in the configuration of the data access plugin, e.g. FirstSpirit templates. In the case of the DatasetDataAccessPlugin, this may be the table template referenced via the tag `TEMPLATE`, for example.

The interface also serves as an adapter so that only the (empty) method which is required by the data access plugin needs to be implemented.

Interface `ValueReferencesJournal` (also in the package `de.espirit.firstspirit.client.plugin.dataaccess.aspects`)
This interface is provided to submit references to values. It offers several methods for different object types and also to indicate broken references. The objects which submit the references are indicated via a unique identifier.

Interface `ModelReferencesJournal` (also in the package `de.espirit.firstspirit.client.plugin.dataaccess.aspects`)
This interface is provided to submit references to FirstSpirit objects which are used in the configuration of the data access plugin, e.g. FirstSpirit templates or media.

The data access plugin DatasetDataAccessPlugin which is provided with FirstSpirit previously used non-public API to model references. As of the current release, this data access plugin was modified to use the new, public API. If existing customer-specific implementations also use non-public API related to this topic, they should be modified accordingly as soon as possible. This affects the following interfaces:

- `ValueReferencing`

- `ModelReferencing`

These interfaces have been marked deprecated as of FirstSpirit 2018-12 and will be removed in subsequent versions.

For further information, see also *FirstSpirit Online Documentation*, "Plug-In Development / Universal Extensions / Data Access".

67.22 Repairing broken references (rebuildReferences) 5.2R7

Dependencies, also called "references", exist between many FirstSpirit elements. These can be displayed via what is known as a "relation graph" ("Extras / Display dependencies" in the context menu or keyboard shortcut Ctrl + R on the required node in SiteArchitect). A distinction is made between "incoming" and "outgoing" references.

The `rebuildReferences(IDProvider)` method (FirstSpirit Developer API, interface `ProjectReferencesAgent, de.espirit.firstspirit.agency` package) can be used to repair "broken" references (which are restored or removed).

More inconsistencies (broken references) can now be repaired with the current FirstSpirit version than was possible in earlier FirstSpirit versions. If the references in question are "broken incoming" references, `rebuildReferences` may have to be called up for both the affected elements.

67.23 Dynamic filters - data access plugins are becoming more flexible

2018-11

The data access infrastructure of FirstSpirit allows module developers to integrate external data sources (e.g. web services) and FirstSpirit-internal data sources (e.g. FirstSpirit fragments) into FirstSpirit projects. Data from these sources can be provided via data access plugins in **FirstSpirit reports** and/or in **FS_INDEX** input components. The interface `DataStreamBuilder` in the package `de.espirit.firstspirit.client.plugin.dataaccess` (FirstSpirit Developer API) allows configuration of a set of data which is provided for use within FS_INDEX input components or reports. Filter parameters, which can be used by editors to filter the amount of data (e.g. via a combobox), may be implemented via the aspect `Filterable`.

For further information about the data stream builder, see *FirstSpirit Online Documentation*, chapter "Plug-In Development / Universal Extensions / Data Access / Data Stream / Builder".

New functionality: Data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters. The new aspect `Updating` in the package `de.espirit.firstspirit.client.plugin.dataaccess.aspects` (FirstSpirit Developer API) enables triggering updates to the filter parameters of a data access plugin ("DAP"). If a filter parameter is changed (e.g. due to selection of a value in a combobox), this API is called with the current set of

values of all parameters and returns a changed set of parameter definitions. The displayed selection fields will then be updated accordingly.

The new functionality is supported in SiteArchitect and ContentCreator.

Example: The TextBlocks example plugin of the "ContentCreator Examples" package was updated with FirstSpirit 2018-11 and now provides quotations from four Shakespeare works. The set of data (2) offered by the DAP can be filtered via two comboboxes (1) (see figure: form view in FS_INDEX on the left - report view on the right):

- [genre] (contains the values "comedy" and "tragedy") and

- [work] (contains the works' names)

If the combobox "[genre]" is set to filter for "tragedies", the set of values in the dependent combobox "[work]" is changed. Now, the combobox "[work]" only allows selection of the available "tragedies" but not of the "comedies".
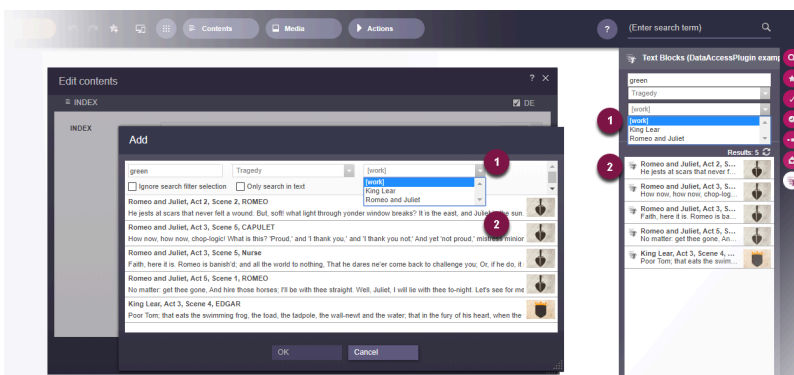
Example: Filtering/updating of the result set of a data access plugin

For further information about the TextBlocks example plugin, see *FirstSpirit Online Documentation*, chapter "Plug-In Development / Examples".

Previous behavior: The value set of the filter parameters for a data access plugin was constant for the duration of the entire user session. That is, the filter parameters were initialized once during start-up of SiteArchitect or ContentCreator and kept by until the end of the session. A value set for filter parameters that is dependent upon the selection of another filter parameter (as shown in the example above) could not be realized in the past.

67.24 E-mail addresses with special characters in the domain part 5.2R6

During work with FirstSpirit, e-mail addresses may be entered in several contexts, e.g. in order to send FirstSpirit users notifications related to tasks, workflows, etc. As of the current FirstSpirit version, e-mail addresses with special characters in the domain part ("IDN domains", RFC 3490) may be used, e.g. "info@müller.de".

Related to this change, several modifications were made to the FirstSpirit Access API: The *public* fields as well as the constructor of the class `de.espirit.firstspirit.access.MailHeader` have been marked deprecated. As a replacement, `MailHeader#getBuilder()` provides a builder object that carries out the necessary conversions automatically.

Methods set to the "deprecated" state can still be used, but as they will be omitted in subsequent versions, this is not advisable. If methods, classes, and interfaces that are no longer supported or are set to deprecated are used in scripts and/or modules, entries are written to log files accordingly (e.g., server log, generation log, etc.). The corresponding log entries should be checked and the cause(s) remedied.

67.25 Establishing connections via API in schedule task scripts 5.2R6

Scripts are an important means to easily and quickly implement custom functionality that is not included in FirstSpirit's standard functionality set. Scripts may be used in various contexts in FirstSpirit, e.g. in schedule tasks ("FirstSpirit ServerManager / Server or Project properties / Schedule management", action "Execute script"). If a script should perform modifying operations on a project, a separate connection to the server must be used instead of the current session. For this, login information (user name, password) of the user that should be used for authentication against the server must be entered.

Until now, this configuration could only be done via GUI:
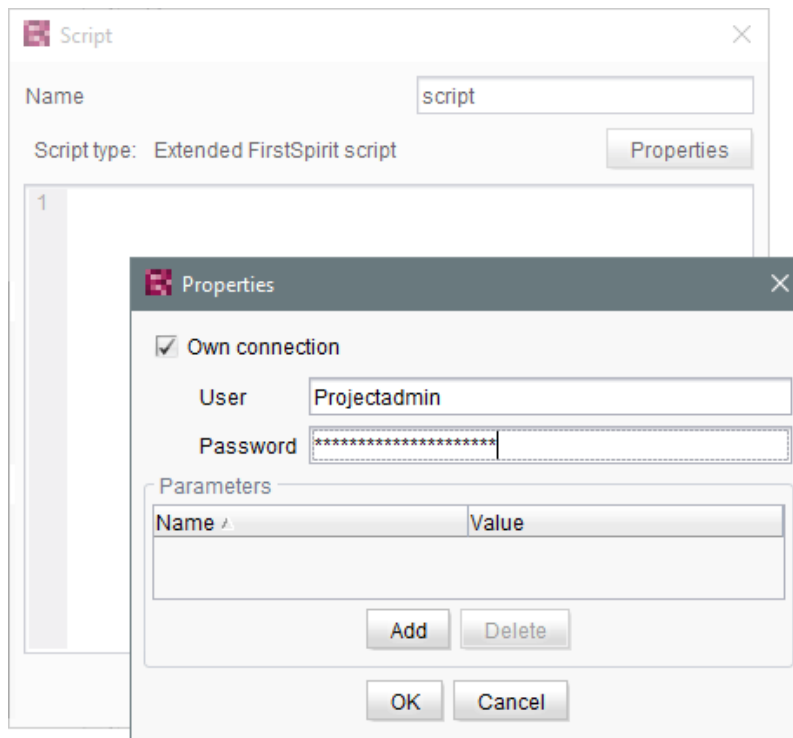
As of the current FirstSpirit version, such a separate connection can also be established via API (interface `ScriptTask`, package `de.espirit.firstspirit.access.schedule`, FirstSpirit Access API). For this, the interface was extended with the following methods:

- `getUseCustomConnection()`

- `setUseCustomConnection(String login, String password)`

- `getCustomConnectionLogin()`

- `setUseSystemConnection()`

For further information about schedule tasks, see *FirstSpirit Manual for Administrators*, chapter "Execute script".

67.26 Getting the host name per API (interface "ServerInformationAgent")

5.2R10

The interface `ServerInformationAgent` (package `de.espirit.firstspirit.agency`) provides information on the FirstSpirit server.

With the new FirstSpirit version the method `getServerName()` was added to the interface. This method returns the FirstSpirit server's name. The return value is the symbolic hostname (parameter `SYMBOLIC_HOSTNAME` in `fs-server.conf`). If this parameter is not set the hostname is returned.

67.27 Identification of server mode (isolated vs. legacy) 5.2R7

The interface `ServerInformationAgent` (FirstSpirit Access API, package `de.espirit.firstspirit.agency`) provides version information about the FirstSpirit server. The `VersionInfo` object returned by the agent now provides information about the currently active server mode ("Legacy" or "Isolated"). This information may be obtained via the new method `getMode()`:

- `LEGACY`: The FirstSpirit server is running in legacy mode.

- `ISOLATED`: The FirstSpirit server is running in isolated mode.

For further information, see *Isolated mode* (→*Manual for Module Developers*).

67.28 Extended functionality for FS_BUTTON scripts 5.2R18

An error has been fixed which could lead to incorrect evaluation of group and user information in ContentCreator forms which were opened using the interface `ShowFormDialogOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API).

In the course of this bugfix, the context object available to scripts which are called in SiteArchitect via the input component FS_BUTTON has been changed to the type `de.espirit.firstspirit.access.ClientScriptContext` (previously, the context object was of type `de.espirit.firstspirit.access.BaseContext`). In contrast to the old context type, this new type offers extended functionality.

For further information, see *FirstSpirit Online Documentation*, page FS_BUTTON, parameters `onClick` and `onDrop`, variable `context`.

67.29 Extension of the ContentCreator-JavaScript-API / WE_API to enable client-side actions on FS_INDEX entries. 2018-11

Entries in a FS_INDEX input component can now be extended with client-side actions. Therefore the *Developer-API* (`de.espirit.firstspirit.webedit.client.api`) was extended by the following classes:

- `ClientItem`

- `ClientItemConstants`

- `ClientItemContext`

- `ClientItemPerformable`

- `ClientItemPlugin`

Additionally the Class `Common` has been expanded by the method `addItemsPlugin`.
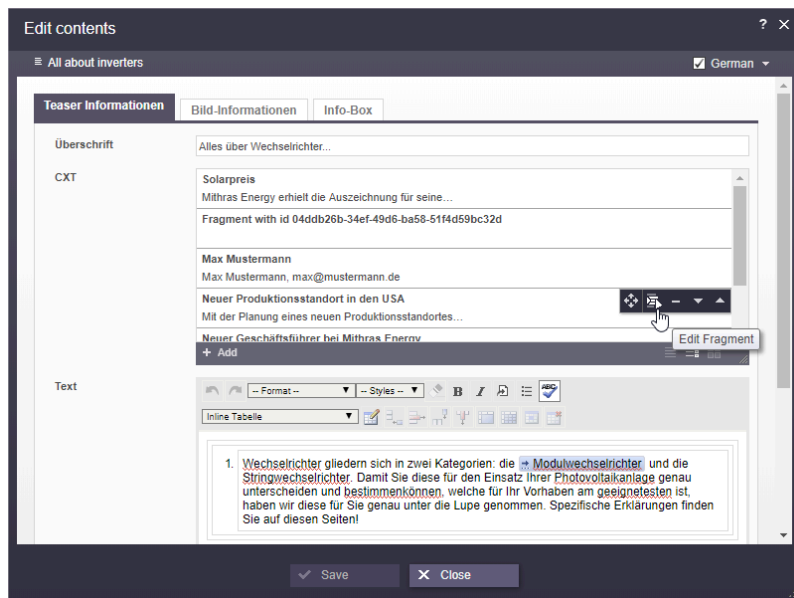
Example based on a FS_INDEX with fragments

To complement previous capabilities it is now possible to add **client-side determined** actions to FS_INDEX entries via JavaScript.

Code example

To perform a simple test of the new API, the following code can be executed **once** in the JavaScript console after starting the ContentCreator. As a result, an additional button is displayed for FS_INDEX entries that displays an alert message.

```
WE_API.Common.addItemsPlugin('index', function(context, receiver) {
    var items = [];
    items.push(context.createItem('media/action/action.png', 'Action Title',
                function() {
    alert(
        'Action performed:\n' +
        'fsid.getId(): ' + context.getProperty('fsid').getId() + '\n' +
        'language: ' + context.getProperty('language') + '\n' +
        'plugin: ' + context.getProperty('plugin') + '\n' +
        'objectId: ' + context.getProperty('objectId')
      );
    }));
    receiver(items);
});
```
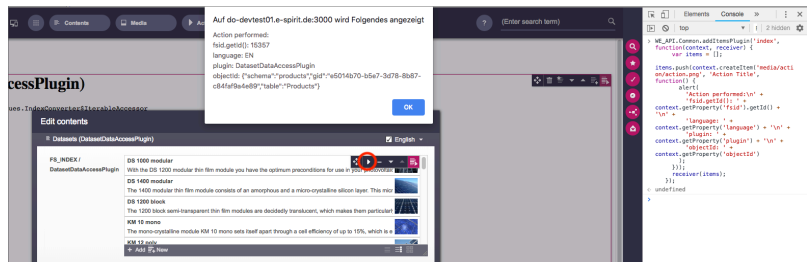

Code example alert message

For more information, see *FirstSpirit Online Documentation*, "Template development / JavaScript APIs / ContentCreator / Common Functionality".

67.30 Extension of the FirstSpirit API by the "ExternalGroup" interface

2018-11

The FirstSpirit Access API was extended by the interface `ExternalGroup` (package: `de.espirit.firstspirit.access.project`) to provide functionality specific to external groups

(for example from an *Active Directory*). The method `getExternalName` returns the name of the external group, while the method `setExternalName` allows setting the group name.

> **!** Setting the group name requires administration privileges at server or project level.

67.31 Extension of the interface "RenderingAgent" 5.2R18

The interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) now also supports passing of FirstSpirit templates and thus the opportunity to render output channel source code as desired.

Until the current version of FirstSpirit, "RenderingAgent" already supported the following FirstSpirit object types (including subclasses):

- `Page`

- `Section`

- `PageRef`

- `Dataset`

- parsed `Media`

New as of the current version of FirstSpirit, `RenderingAgent` additionally supports passing of dynamic output channel source code (`java.lang.String`) and of FirstSpirit templates, e.g.:

- Page templates

- Link templates

- Render templates

Here, it is necessary that a page reference or a media element is passed via `linkRoot()`. The calculations of relative links are done within the context of this node.

Example 1:

```
import de.espirit.firstspirit.agency.StoreElementAgent;
import de.espirit.firstspirit.agency.RenderingAgent;
import de.espirit.firstspirit.access.store.sitestore.PageRef;
storeElementAgent = context.requireSpecialist(StoreElementAgent.TYPE);
renderingAgent = context.requireSpecialist(RenderingAgent.TYPE);
pageRef = storeElementAgent.loadStoreElement("mithras_home", PageRef.UID_TYPE, false);
return renderingAgent.createRenderer("<a href=\"$CMS_REF(ss_product_overview)$\">
    $CMS_VALUE(linktext)$</a>").linkRoot(pageRef).additionalContext("linktext",
    "Some text").urlFactory("Advanced URLs").render();
```

Example 2: Possible use case: obtaining the preview URL of a medium

```
PageRef pageRef = ...; // obtain current page ref (link source)
Media targetElement = ...; // obtain target medium (link target)
RenderingAgent renderingAgent = context.requireSpecialist(RenderingAgent.TYPE);
RenderingAgent.Renderer renderer = renderingAgent.createRenderer("$CMS_REF(target)$");
          // obtain a renderer that is configured with output channel code
String mediaUrl = renderer.linkRoot(pageRef)
 .additionalContext("target", targetElement)
 .preview()
 .render();
```

In this example, output channel code to generate the URL of a medium is passed to `RenderingAgent.createRenderer(String)`, which returns an object of type `RenderingAgent.Renderer`. This `Renderer` object is then used to specify the parameters of generation, e.g. to create the association between the `CMS_REF` parameter `target` and the store element `targetElement` via the method `additionalContext(String, ?)`. The call to the method `render()` returns the generated result.

Furthermore, with the new methods

```
skipProjectProperties()
evaluateProjectProperties(boolean)
```

it is possible to specify whether or not project settings (in FirstSpirit SiteArchitect under "Global settings") should be considered during generation.

67.32 Extension of the interface "ScheduleStorage" `5.2R18`

The interface `ScheduleStorage` (package `de.espirit.firstspirit.access.schedule`, FirstSpirit Access API) was extended with the method `createScheduleEntry(String name, Project project)`. This method allows direct creation of project-specific schedule entries. This method may be used with project administrator privileges.

For security reasons, the already existing method `createScheduleEntry(String)`, which may be used to create server-wide schedule entries, can now only be used with server administrator privileges.

To ensure that current uses of `createScheduleEntry(String)` to create project-specific schedule entries continue to work with project administrator privileges, the code must be modified accordingly.

Example "previously":

```
import de.espirit.firstspirit.access.AdminService;
// Obtain a ScheduleStorage object from the AdminService.
scheduleStorage = context.getConnection().getService(AdminService.class)
        .getScheduleStorage();
// Create a ScheduleEntry object, name "test123".
scheduleEntry = scheduleStorage.createScheduleEntry("test123");
// Associate the ScheduleEntry object with the current project.
scheduleEntry.setProject(context.getProject());
// Set ScheduleEntry object to active, save and unlock the object.
scheduleEntry.setActive(true);
scheduleEntry.save();
scheduleEntry.unlock();
```

Example "now":

```
import de.espirit.firstspirit.access.AdminService;
// Obtain a ScheduleStorage object from the AdminService.
scheduleStorage = context.getConnection().getService(AdminService.class)
        .getScheduleStorage();
// Create a ScheduleEntry object, name "test123", associated with the current project.
scheduleEntry = scheduleStorage.createScheduleEntry("test123", context.getProject());
// Set ScheduleEntry object to active, save and unlock the object.
scheduleEntry.setActive(true);
scheduleEntry.save();
scheduleEntry.unlock();
```

67.33 Expansion of functions for communication between client-side Single Page Application (SPA) and ContentCreator (TPP) `5.2R16`

The `editorId()` function has been expanded to include the `details` parameter.
With the new `details` parameter, it is possible to overwrite the otherwise context-sensitive response of the `editorId()` function. As a result, you define for the client (SiteArchitect or ContentCreator) for which the `previewId` should be rendered.

Possible values for the `details` parameter are

- *JAVACLIENT*: The additional information for the SiteArchitect are always generated.

- *WEBEDIT*: The additional information for the ContentCreator are always generated.

- *SIMPLE*: Only information that is not dependent on the editors in FirstSpirit is written to the `editorId`. These data can be used to address the corresponding element in an external element.

A new function `previewId()` similar to the `editorId()` function has been introduced.
This function is a wrapper that can be used internally to call up the `editorId()` function with certain parameters that cannot be changed.
The function `previewId()` has just one optional parameter: `element`. This parameter can be used to transfer a FirstSpirit object or content area. Other parameters may not be used.

Agent for analyzing the return value
To analyze the return value from `previewId()` an agent has been implemented as part of the API (FirstSpirit Developer API). This agent can be used to determine the ID for the FirstSpirit element to be edited in a certain project language:

```
de.espirit.firstspirit.agency.PreviewIdAgent
de.espirit.firstspirit.agency.PreviewIdAgentImpl
```

> **!** The previous behavior of `editorId()` has not been changed. No changes to existing projects are needed.

For more information

- about the `editorId` function, see *FirstSpirit Online Documentation*, under "Template development / Template syntax / Functions / In instructions / editorId"

- about FirstSpirit Third Party Preview, see documentation for "FirstSpirit Content as a Service".

67.34 External Synchronization / Content Transport: Selecting a database layer for import 5.2R5

The functionalities "FirstSpirit Content Transport" and "External Synchronization" allow export of FirstSpirit content from a source project and import of this content into a target project - if desired, on a regular schedule and automated. Among others, a goal of these functionalities is to enable reuse of content independent of projects and servers and to synchronize the content state between different projects. This synchronization can of course include database content as well. During import of a database schema using either of these functionalities, the new interface `LayerMapper` (FirstSpirit Developer API, package `de.espirit.firstspirit.transport`) allows selection of a database layer onto which the schema should be mapped. This enables mapping several schemata onto different layers.

FirstSpirit provides two example implementations:

- `LayerMapper.SchemaUidBasedLayerMapper`
  maps schema UID to target layer name.

- `LayerMapper.LayerNameBasedLayerMapper`
  maps source layer name to target layer name. This allows mapping of several schemata onto different layers.
  (Not suitable for use with "External Synchronization".)

Custom mappers can be implemented using the API.

The following classes and methods have been marked deprecated in the course of this new implementation:

- "External Synchronization"
  - `ImportOperation.DatabaseLayerMapper`

  - `ImportOperation.MapDatabaseLayerMapper`

- IDENTITY_LAYER_MAPPING

- "Content Transport":
    - `installFeature(FeatureFile  featureFile,  Map<String,String> layerMapping)`
      (interface `FeatureInstallAgent`, Package `de.espirit.firstspirit.feature`)
      has been replaced by: `installFeature(@NotNull FeatureFile featureFile, @Nullable LayerMapper layerMapper)`

Methods set to the "deprecated" state can still be used, but as they will be omitted in subsequent versions, this is not advisable. If methods, classes, and interfaces that are no longer supported or are set to deprecated are used in scripts and/or modules, entries are written to log files accordingly (e.g., server log, generation log, etc.). The corresponding log entries should be checked and the cause(s) remedied.

67.35 FirstSpirit ContentTransport: Obtaining information about imported content 2018-10

The functionality "FirstSpirit ContentTransport" enables transport of project contents from a source project into a target project. For this, the desired contents will be collected or gathered into so-called "features".

The interface `FeatureInstallResult` (Package `de.espirit.firstspirit.feature`, FirstSpirit Developer API) may be used to obtain information specific to a completed feature installation. For the current release, this interface has been revised and now offers the following methods:

- `getCreatedElements()`: returns all elements which were newly created in the target project due to installation

- `getDeletedElements()`: returns all elements which were deleted in the target project due to installation

- `getLostAndFoundElements()`: returns all elements which were moved into the system folder "Lost & Found" in the target project due to installation

- `getMovedElements()`: returns all elements which were moved in the target project due to installation

- `getUpdatedElements()`: returns all elements which were modified in the target project due to installation

For each method call, the return value is a set of `BasicElementInfo` objects (`de.espirit.firstspirit.access.store.BasicElementInfo`, FirstSpirit Access API). Each of these contains ID, UID, store, and the revision. This information may be used e.g. to more easily conduct a release of contents which were changed during an import.

In this context, the previously available methods `getLostAndFoundStoreNodes()` and `getDeletedStoreNodes()` have been marked deprecated and may be removed in a future FirstSpirit release. The interface's new methods `getLostAndFoundElements()` and `getDeletedElements()`, respectively, should be used in their stead.

For further information, see Module documentation for "FirstSpirit CorporateContent", chapter "ContentTransport".

67.36 Read out FirstSpirit version name via API 2018-06

The name of a FirstSpirit version can now be read out via the API with the new `getReleaseName();` method in the `ServerInformationAgent` interface (`de.espirit.firstspirit.agency` package, FirstSpirit Access API).
For example:

```
import de.espirit.firstspirit.agency.ServerInformationAgent;
vers = context.requireSpecialist(ServerInformationAgent.TYPE);
vers.getServerVersion().getReleaseName();
```

The following is returned, for example:

```
2018-06
```

The technical version information can still be determined via `getFullVersionString();` as before; for example:

```
vers.getServerVersion().getFullVersionString();
```

The following is then returned, for example:

```
5.2.2101.77500
```

67.37 Releasing elements via API 2018-06

The new interface `ReleaseOperation` in package `de.espirit.firstspirit.store.operations` (FirstSpirit Access API) makes it possible to release FirstSpirit elements via API on the server-side.

In contrast to `AccessUtil.release(...)` (Package `de.espirit.firstspirit.access`, FirstSpirit Access API) the new interface supports the release of multiple elements at once, as well as the release of datasets.

The following methods can be applied on the result:

- `releaseResult.isSuccessful()`
  Returns `true`, when all affected elements could successfully be released, or `false`, when there were problems with (at least) one element.
  (Note: When requesting release fro an element that is already released nothing will be released, yet `true` will be returned).

- `releaseResult.getReleasedElements()`
  Returns a list of all released elements. The list can contain more elements than the release had been requested for because it includes all elements that actually were released. When requesting release of a page reference the list can additionally include the page referred to, as well as the media used in it.

- `releaseResult.getReleaseFailedElements()`
  Returns a list containing the elements that release had been requested for, but which could not be released.

- `releaseResult.getProblematicElements()`
  Returns a list containing the elements that prevented the release from succeeding.
  An `EnumMap<ReleaseProblem, Set<BasicInfo>>` (new as well, package `de.espirit.firstspirit.access.store`, FirstSpirit Access API) will be returned. With

this you can detect the problem that prevented the release, e.g. if an element does not support release, or if a parent node is not released yet etc.

Example script for releasing an element via the `ReleaseOperation` interface:

```
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.store.operations.ReleaseOperation;
import de.espirit.firstspirit.access.store.IDProvider;
elements = new ArrayList();
elements.add(context.getElement());
operationAgent = context.requireSpecialist(OperationAgent.TYPE);
releaseOp = operationAgent.getOperation(ReleaseOperation.TYPE);
releaseOp.releaseParentPath(true);
releaseOp.ensureAccessibility(true);
releaseOp.checkOnly(false);
releaseOp.withComment("The ReleaseOperation was used for this release");
releaseOp.dependentReleaseType(IDProvider.DependentReleaseType.
   DEPENDENT_RELEASE_NEW_AND_CHANGED);
releaseResult = releaseOp.perform(elements);
context.logInfo("isSuccessful: " + releaseResult.isSuccessful());
context.logInfo("*******************************************");
context.logInfo("getReleasedElements: " + releaseResult.getReleasedElements());
context.logInfo("getReleaseFailedElements: " + releaseResult.getReleaseFailedElements());
context.logInfo("getProblematicElements: " + releaseResult.getProblematicElements());
```

Directly detecting the elements for a specific problem class is also possible, e.g.

```
if(releaseResult.getProblematicElements().get(ReleaseProblem.MISSING_PERMISSION).
   size() > 0)
context.logInfo("Release failed because of insufficient permissions for: "
   + releaseResult.getProblematicElements().get(ReleaseProblem.MISSING_PERMISSION));
```

The following enums for release preventing problems can be queried correspondently:

- `MISSING_PERMISSION`

- `LOCK_FAILED`

- `RELEASE_FAILED`

- `RELEASE_UNSUPPORTED`

- `MISSING_START_NODE`

- `NEVER_RELEASED_START_NODE`

- `NEVER_RELEASED_PAGE`

- `INVALID_STARTNODE_PATH`

- `NEVER_RELEASED_DOCUMENTGROUP_ELEMENT`

- `NEVER_RELEASED_SOURCE_SECTION`

- `INCOMPLETE_PARENT_PATH`

- `VALIDATION_FAILED`

(The FirstSpirit API documentation has not been updated yet. It will only be adjusted with the next release. But new interfaces / methods can already be used.)

Together with these API additions the following methods are "deprecated", and may be removed from a future FirstSpirit version:

- Interface `AccessUtil`:
  - `release(IDProvider toRelease, boolean checkOnly)`

  - `release(IDProvider releaseStartNode, boolean checkOnly, boolean ensureAccessibility, boolean recursive, IDProvider.DependentReleaseType dependentType)`

  - `release(IDProvider releaseStartNode, boolean checkOnly, boolean ensureAccessibility, boolean recursive, IDProvider.DependentReleaseType dependentType, String comment)`

  - `release(IDProvider toRelease, boolean checkOnly, String comment)`

Where the above-mentioned methods are being used a switch to the new interfaces and methods is recommended.

67.38 Function "previewId" was extended to support a parameter "entity"

2018-07

The template function `previewId` now accepts the parameter `entity`, like the function `editorId`:

```
"_previewId" : $CMS_VALUE(previewId(element: #global.node, entity:
    #global.pageParams[0]).toJSON)$
```

This combination should be used in order to obtain distinct `previewId` values for the sub-pages for individual datasets. Without the parameter the `"_previewId"`s of all sub-pages would be equal.

67.39 Retrieving global system web apps 5.2R20

Global system web apps can now also be retrieved with the new method `getGlobalWebApps(boolean includeSystem)` in the interface `ModuleAdminAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API).

67.40 Image Map: Setting Areas With Links Via API (Interface "ImageMapAgent") 5.2R21

By means of the input component CMS_INPUT_IMAGEMAP, links can be added at various locations over a selected image. Using the GUI, at first, a frame object is created for each link (in SiteArchitect: rectangle, circle, or polygon; in ContentCreator: rectangle only). Then, a link may be added to such a frame (also, "link-sensitive region", technically: "area").

Until now, the API only supported setting the image in the image map and adding links to areas. As of the current version of FirstSpirit, the API now also supports definition of areas and optional adding links on these areas via the new interface `ImageMapAgent` in the package `de.espirit.firstspirit.access.editor.value.imagemap` (FirstSpirit Access API).

Creating a frame requires use of a builder that is specific to each frame type (`CircleBuilder`, `RectangleBuilder`, `PolygonBuilder`), which may be obtained by calling the method `get*Builder()`, e.g.

```
getCircleBuilder()
```

Each builder requires specific parameters which are provided to it by calling specialized builder methods:

- `CircleBuilder` requires information about the x and y coordinates of the center point (`center(int x, int y)`) as well as the desired radius of the circle (`radius(int radius)`)

- `RectangleBuilder` requires information about the x and y coordinates of both the upper left and the lower right corners of the rectangle (`bounds(int left, int top, int right, int bottom)`)

- `PolygonBuilder` requires information about the x and y coordinates of each of the polygon's vertices (`add(int x, int y)`); the area's boundary is drawn along the vertices in the order in which they are added, whereas the first and last vertices added via the builder will automatically be connected

All builders support the method `link(Link link)` which may be used to assign a link object to the area that is being configured.

The builder pattern supports chained calls to a builder's methods, e.g.:

```
circleBuilder.center(151, 106).radius(102)
```

After configuring the builder with the desired parameters, the area is created using the method `build()`, e.g.:

```
circleBuilder.center(151, 106).radius(102).build();
```

Example: Configuring an image map with various areas using `ImageMapAgent`
Obtaining an `ImageMapAgent` object

```
import de.espirit.firstspirit.access.editor.value.imagemap.ImageMapAgent;
imageMapAgent = context.requireSpecialist(ImageMapAgent.TYPE);
```

Building an area object
The following code configures and builds a circular area, centered at (80, 80), with a radius of 70 pixels:

```
circleBuilder = imageMapAgent.getCircleBuilder();
areaCircle = circleBuilder.center(80, 80).radius(70).build();
```

The following code configures and builds a rectangular area with a top-left vertex at (328, 258) and a bottom-right vertex at (573, 422):

```
rectangleBuilder = imageMapAgent.getRectangleBuilder();
areaRectangle = rectangleBuilder.bounds(328,258,573,422).build();
```

The following code configures a polygonal area in the shape of a triangle (three vertices):

```
polygonBuilder = imageMapAgent.getPolygonBuilder();
polygonBuilder.add(30,660);
polygonBuilder.add(270,260);
polygonBuilder.add(30,260);
// In the following example, we'll use polygonBuilder to add a link to the area;
// polygonBuilder.build() will be called later.
```

Adding a link to an area object

Link data (choice of link template, link text, link target, etc.) is usually added to areas by editors, using the GUI. Via the API, such data may be defined using a link template that was obtained via the interface `StoreElementAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API), e.g.:

```
storeElementAgent = context.requireSpecialist(StoreElementAgent.TYPE);
linkTemplate = storeElementAgent.loadStoreElement("link",IDProvider.UidType.
  TEMPLATESTORE_LINKTEMPLATE,false);
myLink = linkTemplate.createLink(null);
linkFormData = myLink.getFormData();
linkFormData.get(null,"text").set("e-Spirit Website");
linkFormData.get(null,"link").set("https://www.e-spirit.com");
myLink.setFormData(linkFormData);
```

- In line 2 of the above code example, the string `"link"` indicates the reference name of the desired link template.

- In lines 5 and 6, `"text"` indicates the link form's input component which should carry the link text, and `"link"` indicates the name of the input component which carries the link target (here, a URL).

This fully configured link object, `myLink`, may now be passed to the builder method `link(Link link)`:

```
// Continuing the polygonBuilder example from further above...
areaPolygon = polygonBuilder.link(myLink).build();
```

Adding areas to an imagemap input component

In order to add the configured areas to an imagemap input component's value of type `MappingMedium`, it is necessary to first obtain the imagemap's areas object. For an imagemap input component named `myImagemap` in the form data object `myFormData`, e.g.:

```
myImagemap = myFormData.get(null,"myImagemap").get();
areas = myImagemap.getAreas();
```

The individual area objects that have been built above can be added to the areas object using the method `add(Area area)`, passing one `Area` object per call:

```
areas.add(areaCircle);
areas.add(areaRectangle);
areas.add(areaPolygon);
```

Lastly, the `areas` object (now containing at least the three area objects that were added above) is set on the `myImagemap` value object, and the updated `myImagemap` object is set in the fitting form field of the form data:

```
myImagemap.setAreas(areas);
myFormData.get(null,"myImagemap").set(myImagemap);
```

For further information, see *FirstSpirit Online Documentation*

- Template development / Forms / Input components / IMAGEMAP

- Template development / Template syntax / Data types / Area

■ Template development / Template syntax / Data types / MappingMedium

67.41 Individualizing the global FirstSpirit web applications `5.2R4`

FirstSpirit builds on the concept of modular extensibility by customers and partners. This means that the FirstSpirit standard functions can be adjusted relatively easily to the specific requirements of the projects in question by means of individual, project-specific enhancements (such as input components, services, applications).

Previously, configurable instances of the FirstSpirit web applications that were local to the project had to be created for these individual enhancements. This is still possible.

With FirstSpirit version 5.2R4, however, it is also possible to adapt the global FirstSpirit web applications (fs5root, fs5preview, fs5webedit, etc.) individually, significantly reducing the amount of memory needed, particularly in a corporate environment with many projects. This feature could be released on request in FirstSpirit version 5.2R3 via the e-Spirit Technical Support, with FirstSpirit version 5.2R4 this functionality can be used by default without any need for activation by the e-Spirit Technical Support.

For further information please see *FirstSpirit Manual for Administrators*,

■ Chapter "Individualizing the FirstSpirit web applications"

■ Chapter "Web applications"

67.42 Individualizing the global FirstSpirit web applications (BETA!) `5.2R3`

FirstSpirit builds on the concept of modular extensibility by customers and partners. This means that the FirstSpirit standard functions can be adjusted relatively easily to the specific requirements of the projects in question by means of individual, project-specific enhancements (such as input components, services, applications).

Previously (prior to FirstSpirit version 5.2R3), configurable instances of the FirstSpirit web applications that were local to the project had to be created for these individual enhancements. This is still possible in 5.2R3.

With FirstSpirit version 5.2R3, however, it is also possible to adapt the global FirstSpirit web applications (fs5root, fs5preview, fs5webedit, etc.) individually for the first time, significantly reducing the amount of memory needed, particularly in a corporate environment with many projects.

The following use case should illustrate the advantages of the new strategy:

An individual report (and/or an EasyEdit action, JSP tag lib, executable, etc.) is to be added to the ContentCreator. The necessary classes are defined in a module in a web app component and the module is installed on the FirstSpirit Server.

ContentCreator as local project instance: A ContentCreator instance that is local to the project is then created for each project that is to use the new functionality (report, JSP tags, etc.) and the application is configured with the web app component (from the module) (add, configure, deploy).

Aside from the amount of work involved, one ContentCreator instance for n projects also means that n instances of the application are stored on the front-end side, which can potentially take up a lot of memory on the front-end server.

New functionality – ContentCreator as global, individualized web application: By contrast, the new functionality can be used to add individual web app components directly to the global web application. To do this, the desired web app component is simply added and deployed via the FirstSpirit ServerManager in the "Server Properties / Web applications" area. The added enhancements are now available to all projects on the server (for which no local project ContentCreator instance has been configured). If, for example, a JSP tag lib has been provided via the web app component, the corresponding tags can then be used in all projects. It is no longer necessary to create instances that are local to the project. Instead of n instances, only one instance now needs to be stored on the front-end side.

> **!** This functionality is currently still in the beta stage and should not be used in live environments. It can be released on request in FirstSpirit version 5.2R3 via the e-Spirit Technical Support.

Further prerequisites:

Scope: The introduction of the new functionality has also changed the scope of the components. Previously, web applications only had "local web" visibility, i.e., after installing the module, they had to be added to the desired web areas in the projects and were then available in the relevant project.

A second, server-wide scope has now been added to this existing scope. The `scopes` attribute, which can be used within the module declaration, has been added for this purpose. Possible values:

```
<web-app scopes="global">
```

```
<web-app scopes="project">
```

```
<web-app scopes="global, project">
```

If a new web application is added via the ServerManager in the "Server Properties / Web applications" area, only components with the `global` scope can be assigned to this application. Conversely, only web components with the `project` scope can be assigned to a project (in the "Project Properties / Web components" area).

For developers, web app components differ according to their scope with regard to the information available via the "SpecialistsBroker". Web applications that are local to a project have a "WebEnvironment" which inherits from the "ProjectEnvironment" and they receive (via the `#getBroker` method) a (project-specific) instance of the type `SpecialistsBroker`.

For global web applications, the "WebEnvironment" returns a project-independent instance of the type `SpecialistsBroker` when `#getBroker` is called, and therefore returns "null" when `#getProject` is called.

```
<module>
   ...
   <components>
    ...
      <web-app scopes="global">
         ...
      </web-app>
   </components>
</module>
```

Configuration: The configuration options of the web components also need to be looked at in more detail according to the scope. Previously, a configuration for a web application was always local to a project, i.e., special values could be entered in the relevant configuration GUI for each individual project. For a global web application, the initial configuration can only take place at a global level. However, it is also possible to carry out an additional configuration that is local to a project for global web app components, e.g., via an additional project application which is also part of the module.

```
<module>
    ...
    <components>
     ...
       <web-app scopes="global">
          ...
          <configurable> MyGlobalAppConfigPanel </configurable>
       </web-app>

       <project-app>
          ...
          <configurable> MyProjectAppConfigPanel </configurable>
       </project-app>
          ...
    </components>
</module>
```

For more information on developing and configuring web applications, see also

- *FirstSpirit Manual for Administrators*, chapter "Web applications"

- *FirstSpirit Developer Manual for components (German only)*

67.43 Interface "DatasetProvider": Creating a new dataset 5.2R19

The new method `createDataset()` in the interface `DatasetProvider` (package `de.espirit.firstspirit.access.store.contentstore`, FirstSpirit Access API) a new dataset can now be directly created within a data source (interface `Content2`) as well as in a database (interface `Tabletemplate`). Until now, a detour via a corresponding entity was necessary.

67.44 Interface "Executable" (package "de.espirit.firstspirit.access.script") improved 5.2R13

The signature of the method `execute` in the interface `Executable` (package `de.espirit.firstspirit.access.script`, FirstSpirit Access-API) no longer uses `ExecutionException` (`de.espirit.firstspirit.access.script.ExecutionException`) and is therefore easier to implement.

67.45 Interface "ModuleAdminAgent": New methods for registration and configuration of web servers `2018-09`

Extended the interface `ModuleAdminAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API), which is used for programmatic administration of modules, by adding methods for registration and configuration of web servers.

- `registerWebServer`: creates a web server

- `unregisterWebServer`: deletes the specified web server including the directories generated for it under `<FirstSpiritROOT>/conf/webserver/`

- `getWebServerConfiguration`: returns the configuration directory `<FirstSpiritROOT>/conf/webserver/` into which the specified web server was rolled out

Execution of these methods requires server administrator privileges.

67.46 The "NewSectionOperation" interface takes over the function of "NewSectionExecutable" `2018-08`

The `de.espirit.firstspirit.webedit.server.executables.NewSectionExecutable` class can be used to create new sections in the preview area of FirstSpirit ContentCreator in conjunction with the FS_BUTTON input component.
With the latest FirstSpirit release, the function has been moved to the public API in the `NewSectionOperation` interface (`de.espirit.firstspirit.webedit.server` package, FirstSpirit Developer API), and is no longer linked to use with FS_BUTTON.

See also *FirstSpirit Online Documentation*, "Template development / ContentCreator / Functional scope", "Creating a section ('NewSection')".

67.47 Interface "NewSectionOperation": New method "preselectedLanguage" `2018-08`

The interface `NewSectionOperation` (Package `de.espirit.firstspirit.webedit.server`, FirstSpirit Developer-API) has been extended with the method `preselectedLanguage`. By using the new method it is now possible to preselect a project language for editing language-dependent editorial

content. When opening a form, the preconfigured language can be displayed directly to the editor for editing.

If no language preselection is defined, the current preview language is still displayed for editing.

If a language is specified, that is unconfigured in the project (i.e. is invalid), an error message is displayed.

67.48 Interface "PasswordAgent": encrypt passwords through the API
`5.2R19`

FirstSpirit version 5.2R16 already introduced optionally encrypted passwords in FirstSpirit configuration files (see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit Server configuration / Configuration files (FirstSpirit Server) / FirstSpirit Server (fs-server.conf) / Password encryption". Now a new API is introduced to provide this capability to module developers (to encrypt module passwords).

The API can be accessed through an agent `de.espirit.firstspirit.agency.PasswordAgent` (FirstSpirit Developer API).

67.49 "ShowFormDialogOperation" interface, new method "setPreselectedLanguage" `2018-08`

In the `ShowFormDialogOperation` interface (`de.espirit.firstspirit.ui.operations` package, FirstSpirit Developer API), the new `setPreselectedLanguage` method now makes it possible to set the preselected language for a multilingual dialog.

See also *FirstSpirit Online Documentation*, "Plug-in development / Development and allocation / Use of FirstSpirit APIs / Dialogs, forms, and rulesets".

67.50 Isolated mode (BETA) - Realignment of module development `5.2R6`

FirstSpirit extensions are implemented using Java. The integration of an external implementation into the FirstSpirit server and FirstSpirit client applications (FirstSpirit SiteArchitect, FirstSpirit ServerManager, ...) is done via the FirstSpirit APIs (Access API and Developer API). These provide access to FirstSpirit-internal information, services, and functionality.

During run-time, the file `fs-server.jar` (or `fs-client.jar`) is in the class path. Besides the FirstSpirit APIs, the file `fs-server.jar` also contains internal FirstSpirit classes and various libraries (see diagram below).

Module development (previous behavior): Until now, all contents of the file `fs-server.jar` are started in the Java VM. This means that the VM class loader has access to not only the official FirstSpirit interfaces but also the internal classes and libraries contained in the JAR file (see diagram):
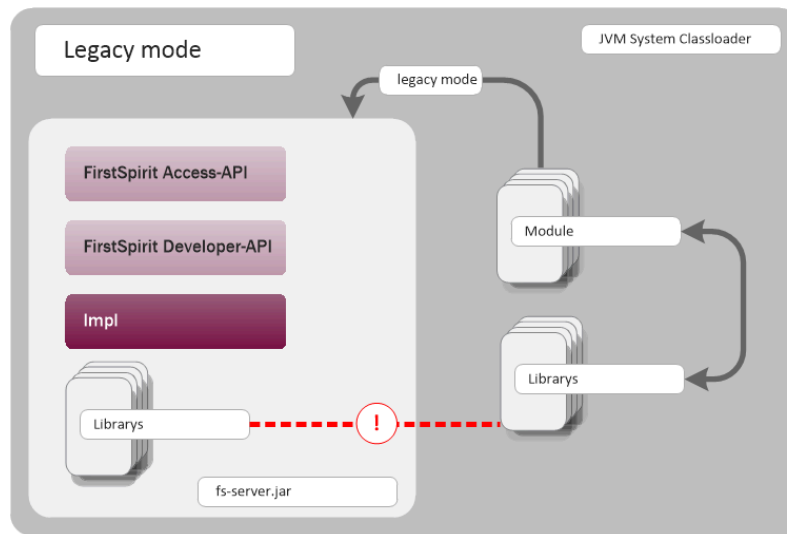
Module development (previous behavior)

Known disadvantages are:

- The libraries contained in the file `fs-server.jar` (e.g. Log4J; Apache Commons) lead to global dependencies. Conflicts may arise e.g. when the FirstSpirit server uses a library and a module developer attempts to use the same library in a different (newer) version. A module-local replacement of specific libraries is currently not possible.

- The libraries contained in the file `fs-server.jar` are not guaranteed product components and thus do not adhere to an orderly change management (as opposed to the FirstSpirit APIs). The version of a library that is included in `fs-server.jar` depends upon the FirstSpirit version in use. This implies that conflicts may also arise during upgrade and downgrade of a FirstSpirit server. If the version of a library is changed on the server, incompatibilities with already installed modules that use the same library may arise.

■ Further potential for conflict arises from uncontrolled use of internal implementation classes that are also contained within `fs-server.jar`. Because these are accessible in the JVM class loader hierarchy, they can inofficially be used by module implementations. At face value, this is a convenient workaround if a method is not available in the official APIs, but these internal classes are of course not covered by stability guarantees and may be changed at any time.

Module development in "isolated mode" (future behavior): In "isolated mode", the FirstSpirit APIs continue to be included in `fs-server.jar` (`fs-isolated-server.jar`). Thus, all methods and interfaces of the API are visible to the class loader and may be used for module development (see diagram below). In order to establish connections and carry out further essential functionality, a minimal infrastructure in the form of internal classes is required ("basic infrastructure", see diagram). These internal infrastructure classes, too, are visible to the class loader. In isolated mode, all further internal classes ("Impl") and the libraries previously included in `fs-server.jar` are no longer contained in the class loader hierarchy. These contents will be relocated to a hidden area (in a directory within the JAR file) and can no longer be located by the class loader ("hidden" area, see diagram). Thus, conflicts can no longer arise if a module uses a library that is already contained in `fs-server.jar` in a different version. However, conflicts with other modules that attempt to use different versions of the same library may still arise if these libraries are included with a global scope.
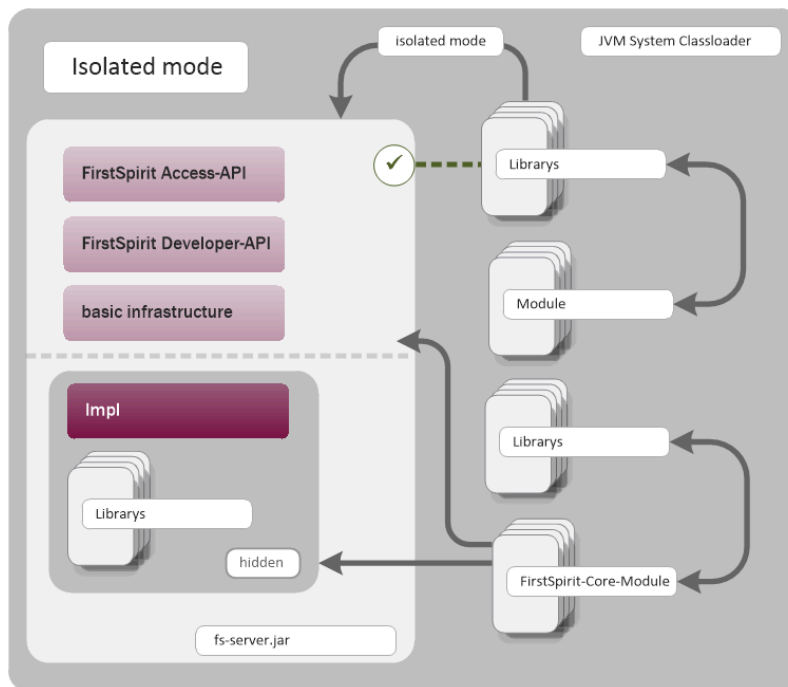
Module development (future behavior)

Goals and advantages of isolated mode:

- greater freedom in the selection of libraries to be used

- extensive avoidance of global dependencies to other product components

- overall, module development becomes more secure and more stable

- improved module maintenance

- reduced migration efforts when upgrading or downgrading a FirstSpirit server

Timeline: Introduction of isolated mode (subject to change): As of the current FirstSpirit version, operation of the server in isolated mode is optional. Configuring the server to operate in isolated mode is easy but requires deliberate action. In order to ensure compatibility with existing modules, the previous behavior ("legacy mode") continues to be supported and is the standard behavior throughout the entire 5.2 version line. This means that modules that were designed to rely upon internal libraries can continue to be used. This does not require adjustments.

With FirstSpirit 6.0, "isolated mode" will be used as the new standard behavior. The previous behavior will be deprecated as of FirstSpirit 6.0.

Complete documentation about the realignment of module development: *Isolated mode* (→*Manual for Module Developers*) (*FirstSpirit Developer Manual for components (German only)*, accessible from "FirstSpirit Online Documentation" (ODFS) via the navigation menu in the left sidebar.)

67.51 Obtaining the most recent login date of a user via API 5.2R16

The package `de.espirit.firstspirit.agency` (FirstSpirit Developer API) contains a new interface, `UserStatisticsAgent`. The newly-implemented method `getLastLoginAsDate(long)` in this interface may be used to obtain the date on which a user with a given ID most recently logged on to the FirstSpirit server. Due to reasons relating to data privacy, the time component of this information will always be set to 0000h (12 a.m.).

67.52 License: retrieve license expiration date and number of CaaS slots

2018-07

The operation of the FirstSpirit-module "Content as a Service" (CaaS) requires a specific license. The license attribute `license.CAAS_SLOTS` specifies the maximum number of CaaS slots that may be defined. In case `license.CAAS_SLOTS` is 0, the maximum number of CaaS slots is unlimited.

With the latest FirstSpirit release, the `LicenseService`, package `de.espirit.firstspirit.license` (FirstSpirit developer API), was extended by the methods

- `getCaasSlots();` and

- `getLicenseExpirationDate();`

The new API methods allow access to the maximum number of CaaS slots and the license expiration date (attribute `license.EXPDATE`).

Code example:

```
import de.espirit.firstspirit.access.ServicesBroker;
import de.espirit.firstspirit.license.LicenseService;
ls = context.requireSpecialist(ServicesBroker.TYPE).getService(LicenseService.class);
ls.getCaasSlots();
ls.getLicenseExpirationDate();
```

Further information can be found in the documentation of the CaaS module "FirstSpirit Content as a Service".

67.53 Deleting Elements 5.2R18

The new interface `DeleteOperation` in the package `de.espirit.firstspirit.store.operations` (FirstSpirit Developer API) may be used to carry out server-side deletion of FirstSpirit elements.

In the course of this work, the following methods of the class `AccessUtil` (package `de.espirit.firstspirit.access`, FirstSpirit Access API) have been deprecated and can be omitted in subsequent versions:

```
AccessUtil#delete(IDProvider, boolean)
AccessUtil#delete(Collection, boolean)
```

In contrast to `AccessUtil`, the new interface also supports deletion of datasets.

Example script for the deletion of a single element:

```
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.store.operations.DeleteOperation;
storeElement = context.getElement();
operationAgent = context.requireSpecialist(OperationAgent.TYPE);
deleteOperation = operationAgent.getOperation(DeleteOperation.TYPE);
deleteResult = deleteOperation.perform(storeElement);
```

67.54 Making media language-dependent or language-independent via API

5.2R16

In FirstSpirit SiteArchitect, media may be converted between being language-dependent and language-independent via the context menu item "Extras / Make medium language-(in)dependent".

Using the methods

- `makeLanguageDependent`

- `makeLanguageIndependent`

of the interface `Media` (package `de.espirit.firstspirit.access.store.mediastore`, FirstSpirit Access API), this conversion may now be carried out via the API as well. Thus, this functionality can now be offered on a project-specific basis in ContentCreator.

The call to the method `makeLanguageDependent` may specify several languages to which the currently language-independent medium's content and description will be copied.

67.55 Method save() observes the option "Server locks in content store"

5.2R2

The project properties in ServerManager offer the option "Server locks in content store" (ServerManager / Project / Properties / Options). If this option is activated, data sources can only be edited by one user exclusively; other users cannot modify datasets in that data source concurrently.
Attempts to save a Dataset object via the API method `save()` without a preceding lock operation via the method `lock(true)` will cause

■ saving to fail with an error message (in the form of "java.lang.IllegalStateException: dataset 321 not locked") if this option is **active**,

■ a warning (in the form of "WARN 05.10.2015 15:14:59.001 (de.espirit.firstspirit.store.access.contentstore.DatasetImpl): dataset 321 not locked. please make sure the dataset is locked prior to saving.") to be logged to the file `fs-server.log` if the option is **not active**. In this case, saving is possible.

For further information about the option "Server locks in content store", see

■ *FirstSpirit Manual for Administrators*, Chapter "Options"

■ *Documentation for FirstSpirit SiteArchitect*, Chapter "Procedure in multi-user operation"

67.56 Methods for determining the absolute path to the schedule entry directory 5.2R2

Using the new `getFolderPath` method in the `JobAgent` interface (FirstSpirit Developer API, Package `de.espirit.firstspirit.scheduling.agency`), it is now possible to access the absolute path to the entry directory.

67.57 Multi Perspective Preview: Creating and configuring viewports via API 5.2R6

With the functionality "Multi Perspective Preview" (MPP), FirstSpirit supports editors in controlling how web page content is displayed and navigated in display sizes of various output devices and in optimizing layouts and images for specific output devices. Each output device may be represented by a so-called

viewport. Thus far, viewports of a project were defined and configured via project settings in FirstSpirit ServerManager ("Options / Configure preview viewports"):
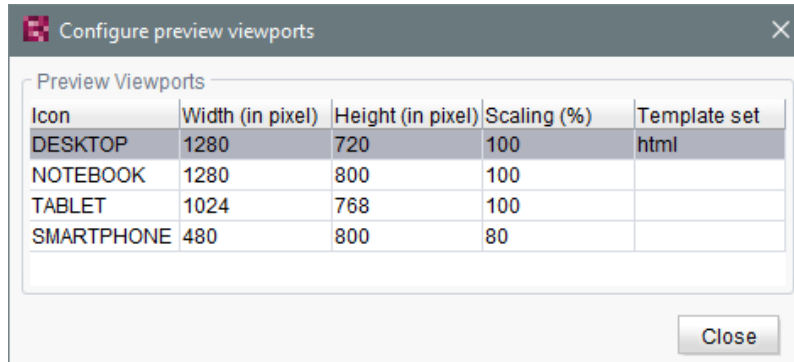
As of the current FirstSpirit version, such viewports can now be created, modified, and deleted via API. The package `de.espirit.firstspirit.access.project.mpp` (FirstSpirit Developer API) contains the following interfaces:

- Interface `MPPViewport` (represents a viewport)

- Interface `MPPViewport.Builder` (creates a viewport)

- Enum `MPPViewport.IconType` (icon type for a viewport)

- Interface `MPPViewportAgent`

- Interface `MPPViewports` (query viewports defined for a project and create/delete a viewport)

Note: When configuring multiple viewports, care should be taken that no two identical viewports (with identical values) are defined, and negative values should not be used.

For further information, see *Template development / JavaScript APIs / Multi Perspective Preview* (→*FirstSpirit Online Documentation*) and *FirstSpirit SiteArchitect / FirstSpirit AppCenter / Integrated preview / Multi Perspective Preview* (→*Documentation FirstSpirit SiteArchitect*).

67.58 Recalculation of references for individual elements via ProjectReferencesAgent `5.2R3`

If a project contains broken references, the project-level schedule activity "Repair references" may be used to recalculate references within the project. This task operates on the entire project and may take a long time to complete, depending on the project's size.

FirstSpirit version 5.2R3 introduces a new agent, `ProjectReferencesAgent` (FirstSpirit Developer API, package `de.espirit.firstspirit.agency`), which enables recalculation of references for individual elements using the method `rebuildReferences(IDProvider)`. The agent also provides a means to trigger recalculation of all references in the project via API (method `rebuildReferences()`).

67.59 "WE_API" has new events `5.2R20`

With the current FirstSpirit version you can, using the "WE_API", register for events that are fired when creating a new page, or when changing the navigation within the current session. This allows for web-apps editing a FirstSpirit project via FirstSpirit Third Party Preview (TPP) to jump to the newly created page, or to update their navigation.

The new listener can be registered like this, on the JavaScript console:

```
top.WE_API.Common.addNavigationChangeListener(function(fsid) {
 console.log("navigationChanged: " + (fsid ? fsid.getStoreType() + ":" + fsid.getId() :
    "all"));
});
```

Furthermore, using the WE_API, you can now register for events that are fired when a workflow is being processed. This was also added to extend the Third Party Preview (TPP). But the listener can be used independently as well.

The listener can be registered as follows:

```
top.WE_API.Common.addWorkflowTransitionListener(function(){
 console.log("WorkflowTransition:\n"
 + "getWorkflowTarget: " + (workflowInfo.getWorkflowTarget() ?
   workflowInfo.getWorkflowTarget().getId() : "-") + "\n"
 + "isDeleted: " + workflowInfo.isDeleted() + "\n"
 + "isReleased: " + workflowInfo.isReleased() + "\n"
 + "isFirstTransition: " + workflowInfo.isFirstTransition() + "\n"
 + "getTransitionId: " + workflowInfo.getTransitionId() + "\n"
 + "getWorkflowId: " + workflowInfo.getWorkflowId() + "\n"
 + "isEndState: " + workflowInfo.isEndState() + "\n");
})
```

67.60 New functions in "WE-API" 5.2R20

With the TPP API's new `setPreviewElement` WebApps can now set the ContentCreator's PreviewElement, thus allowing users to work with the toolbar (workflows etc.), just as they know it from "classic" FirstSpirit projects.

The new function `addPreviewRequestHandler` makes it possible for WebApps to react appropriately when an editor clicks on a page or section in the report area.

67.61 New interfaces and methods for implementing personal schedule actions 5.2R3

FirstSpirit schedule entry planning enables time-controlled execution of actions ("tasks") at server/project level. Associated actions can be combined in one schedule. From FirstSpirit version 5.2R3 onward, the following FirstSpirit Developer API interfaces and methods enable the implementation of further functions for self-implemented actions, which can be used to access and further process information from other actions, for example:

- `Generating` interface (`de.espirit.firstspirit.scheduling.aspects` package):
  This interface is used to identify a generation schedule and, for example, to query the status of the schedule and the number of generated pages.

- `GenerationAgent` interface
  (`de.espirit.firstspirit.scheduling.agency` package):
  This interface is used specifically to respond to generation schedules.

- `getAspect` method
  (`ScheduleTaskControl` interface, `de.espirit.firstspirit.scheduling` package):
  Provides aspects of the current schedule.

- `configureGenerateTask(@NotNull ScheduleTaskControl control)` method
  (`DeltaGeneration.ChangeSet` interface,
  `de.espirit.firstspirit.access.schedule` package):
  Configures a control object.

For more information, see also *FirstSpirit Online Documentation*, "Plug-In Development / Server Plug-Ins / Schedule Tasks".

67.62 New Interfaces to Open Version Comparison and Merge Dialogs

5.2R3

FirstSpirit version 5.2R3 introduces new interfaces (both in the package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer-API) to support comparison and merge functionality, respectively, for revisions:

- `OpenComparisonDialogOperation`

- `OpenMergeDialogOperation`

Example for `OpenComparisonDialogOperation`:

```
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.ui.operations.OpenComparisonDialogOperation;
import java.io.StringReader;
operationAgent = context.requireSpecialist(OperationAgent.TYPE);
operation = operationAgent.getOperation(OpenComparisonDialogOperation.TYPE);
operation.setDialogTitle("Title");
operation.setOriginalHeader("Original");
operation.setModifiedHeader("Modified");
originalText = "Deleted My Original Text";
modifiedText = "My Modified Text Inserted";
operation.perform(originalText, modifiedText);
return 0;
```
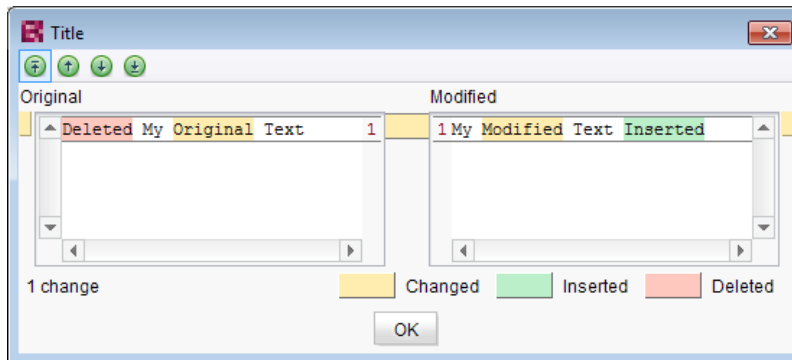
Comparison (OpenComparisonDialogOperation)

Example for `OpenMergeDialogOperation`:

```
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.ui.operations.OpenMergeDialogOperation;
import java.io.StringReader;
operationAgent = context.requireSpecialist(OperationAgent.TYPE);
operation = operationAgent.getOperation(OpenMergeDialogOperation.TYPE);
operation.setDialogTitle("Title");
operation.setOriginalHeader("Original");
operation.setModifiedHeader("Modified");
originalText = "Deleted\nSome\nOriginal\nText";
modifiedText = "Some\nModified\nText\nInserted";
resultingText = operation.perform(originalText, modifiedText);
print("Merge result = '" + resultingText + "'");
return 0;
```
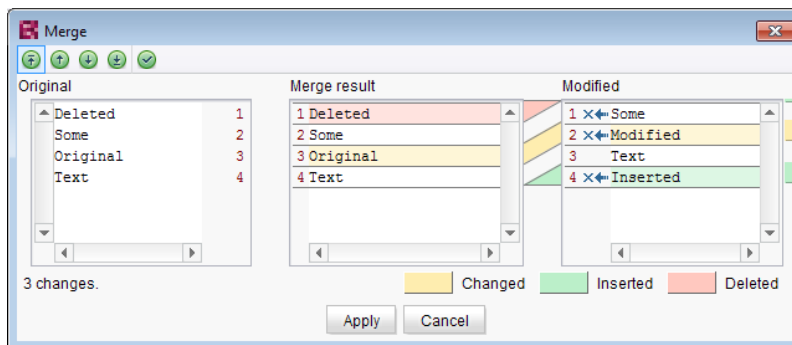

Merge (OpenMergeDialogOperation)

67.63 New method "getServiceConfig" in interface "ModuleAdminAgent"

5.2R12

The new method `getServiceConfig` of the interface `ModuleAdminAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) provides access to the directory containing the configuration files of a service of a module (analogous to `getProjectAppConfig` and `getWebAppConfig`). This requires server administrator privileges.

67.64 New Method for Cancelling Maintenance Mode 5.2R3

FirstSpirit supports a maintenance mode which may be used to shut down the server at a pre-planned time in order to perform updates or other system maintenance. Depending on configuration, users may be prohibited from logging onto the FirstSpirit server or opening specific projects, while currently logged on users will receive a notification that the FirstSpirit server is about to be shut down. Maintenance mode is controlled by a schedule task (ServerManager / Server / Properties / Schedule Management / Action "Maintenance mode"). In this task, the duration of maintenance mode may also be specified (option "Estimated duration").
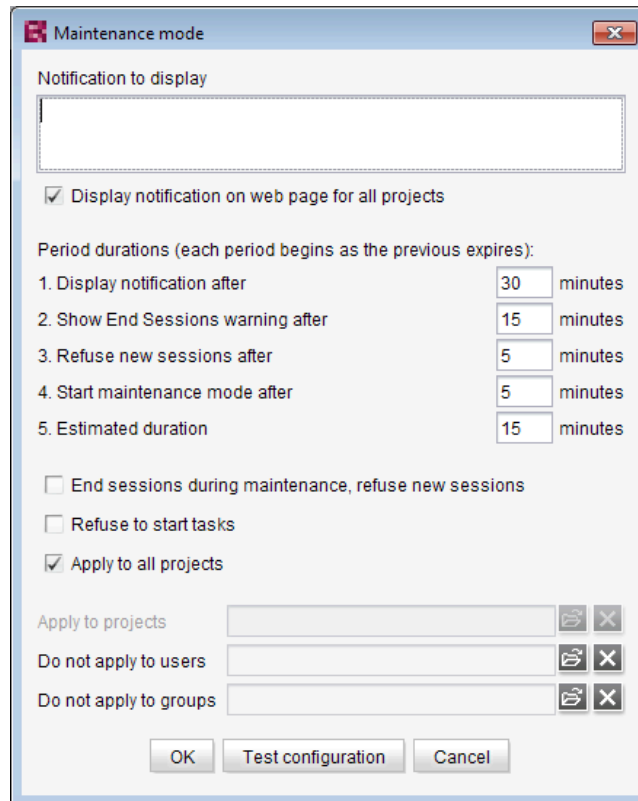
Configuration of a maintenance mode task

The new method `boolean stopMaintenance(long scheduleEntryId)` (FirstSpirit Access API, Package `de.espirit.firstspirit.access`, Interface `AdminService`) may be used to cancel maintenance mode via the API, e.g. if the maintenance tasks have been completed sooner than planned (and specified in the schedule task's "Maintenance mode" action).

The ID of the schedule task that was used to start maintenance mode must be provided using the parameter `scheduleEntryId`. The method returns `true` if maintenance mode was cancelled successfully.

For further information about configuring maintenance mode, see *FirstSpirit Manual for Administrators*, chapter "Maintenance mode".

67.65 New agent "ServerConfigurationAgent" for configuring the server

2018-07

The configuration of a FirstSpirit server could have been accessed using the interface `ServerConfiguration` in the package `de.espirit.firstspirit.access` (FirstSpirit Access

API) so far. This interface could be used for reading out values like the socket port, and partially to set values as well.

As of FirstSpirit 2018-07 a dedicated agent has been introduced, which will assume this task largely: `ServerConfigurationAgent` in the package `de.espirit.firstspirit.agency` (FirstSpirit Access API). The new interface provides access to values of the server configuration in a type safe manner, using the methods `getServerProperty` and `setServerProperty`. For example, durations are handled as instances of `java.time.Duration`.
A list of all accessible server properties can be found in the class `ServerProperties` in the package `de.espirit.firstspirit.server.configuration`.

In addition, the `ServerConfigurationAgent` provides access to the previous `ServerConfiguration` further on.

67.66 New API interface "ConnectionExtractor" allows access to the connection of the logged-in user 5.2R16

The new interface `ConnectionExtractor` (package `de.espirit.firstspirit.web`, FirstSpirit Developer API) offers access to the connection of the logged-in user (within the FirstSpirit web applications (ContentCreator, Preview, Staging)) via the method `extractConnectionFromRequest(HttpServletRequest)`.

The connection may be used to simplify the communication (e.g. passing of parameters) between FirstSpirit and a third-party application (e.g. integration of third-party content or, in general, in servlet and filter environments).

67.67 New API interface "ProjectMembersAgent" provides information about users and groups 5.2R15

The new FirstSpirit Developer API interface `de.espirit.firstspirit.agency.ProjectMembersAgent` now provides access to information about users and groups of a project, e.g.

- Method `getGroups`: returns all groups of the current project

- Method `getUsers`: returns all users of the current project

- Method `getUserByLogin`: returns the user associated with a given login name

- Method `getGroupByName`: returns the group associated with a given group name

- Method `getUserGroups`: returns the group the specified user belongs to

In the course of this improvement, the existing interface `GroupsAgent` of the same package, which provides similar functionality, has been marked *deprecated* and will be removed in May 2018.

If methods, classes, and interfaces that are no longer supported or are set to deprecated are used in scripts and/or modules, entries are written to log files accordingly (e.g., server log, generation log, etc.). The corresponding log entries should be checked and the cause(s) remedied.

Methods set to the "deprecated" state can still be used, but as they will be omitted in subsequent versions, this is not advisable.

67.68 New Interface "PreviewUrlAgent" for creating preview URLs   2019-01

While preview URLs for page references could previously be created using the `Previewable` interface (Package `de.espirit.firstspirit.access.store`, FirstSpirit Access API), the current release now also allows this to be realized for media. The new interface `PreviewUrlAgent` (FirstSpirit Developer API, Package `de.espirit.firstspirit.agency`) was implemented for this purpose. It can be used to create preview URLs for media as well as for page references.

The agent can be called as follows:

```
import de.espirit.firstspirit.agency.PreviewUrlAgent;
pua = context.requireSpecialist(PreviewUrlAgent.TYPE);
cpb = pua.getContentProducerBuilder();
mb = pua.getMediaBuilder();
cpb.getUrl(<Pageref>);
mb.getUrl(<Media>);
```

`<Pageref>` and `<Media>` are the concerned FirstSpirit objects.

Use

- `MediaPreviewUrlBuilder` for creating URLs for FirstSpirit media of the type *File* or *Picture*

- ■ `ContentProducerURLBuilder` for creating URL for FirstSpirit objects of the type *PageRef*, *Page* and *Documentgroup*

You can switch to another language using `language(<language>)`.

Use `forWebedit()` and `fullQualified()` to configure the builder to create ContentCreator or Fully Qualified links.

Example:

```
mb.language(<Language>).forWebedit().fullQualified().getUrl(<Media>);
```

Note: When using remote links, corresponding "jump" URLs will be created.

In the context of this API enhancement, `de.espirit.firstspirit.access.store.Previewable` was deprecated.

Methods set to the "deprecated" state can still be used, but as they will be omitted in subsequent versions, this is not advisable.

If methods, classes, and interfaces that are no longer supported or are set to deprecated are used in scripts and/or modules, entries are written to log files accordingly (e.g., server log, generation log, etc.). The corresponding log entries should be checked and the cause(s) remedied.

Note: The corresponding API documentation (see e.g. *Online Documentation for FirstSpirit* (ODFS), "Template development / FirstSpirit API / API documentation") will be published with the next release of FirstSpirit, however, the new functionality may already be used as of the current FirstSpirit release.

67.69 Check for duplicate resources 2018-12

Classes and other resources are defined in FirstSpirit modules and in their components in `<resource>` entries. These reference a Jar file or a directory. These resource entries can carry information about version and "scope" (e.g. available server-wide or limited to the module) of the resource.

Duplicate resources for the same scope (i.e. web or project/server) are not permitted.

As of the current release, FirstSpirit prevents the use of duplicate resources, i.e. Jar files in identical or different versions, within the same scope. Attempts to install a module with duplicate resources will be aborted with an error message. This prevents possible subsequent erroneous behavior during use of the modules.

For further information, see "FirstSpirit Entwicklerhandbuch für Komponenten (Beta)", "FirstSpirit Modul-Grundkonzeption / Modul-Bestandteile / Ressourcen" (German only).

67.70 RenderingAgent supports remote links 5.2R16

The interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) supports remote links as well as of the current FirstSpirit version.

67.71 RenderingAgent: Take information from higher-level contexts into account 2018-07

FirstSpirit content can be generated via the `RenderingAgent` interface (package: `de.espirit.firstspirit.agency`, FirstSpirit Developer API). The interface enables a special generation for specific dynamic content to be controlled directly via the API.

The *STRICT* render mode, which is called up via `.strict()`, has been added to the latest FirstSpirit release. In this mode, information from higher-level contexts is also taken into account. For example, a variable that has been defined in a page template and modified in preceding sections can now be output in a section with the correct content.

Similarly, the `pageRef` context has been added in the `RenderingAgent.Renderer` interface. This context enables a page reference to be transferred as a context so that, for example, metadata defined in it can also be read out and used.

Example:

```
import de.espirit.firstspirit.agency.RenderingAgent;
import de.espirit.firstspirit.access.store.*;
import de.espirit.firstspirit.agency.StoreElementAgent;
storeElementAgent = context.requestSpecialist(StoreElementAgent.TYPE);
pageref = ...; // z. B. storeElementAgent.loadStoreElement("...",IDProvider.UidType.
    SITESTORE_LEAF,false);
section = ...; // z. B. context.getElement(); beim Aufruf als Kontextmenü-Skript
renderingAgent = context.requestSpecialist(RenderingAgent.TYPE);
renderer = renderingAgent.createRenderer(section).context(pageref);
renderedSectionContent = renderer.strict().getResult().getContent();
```

Note: If variables are modified in a different context (e.g., in a section with `$CMS_SET(#global.context("PAGE")["counter"], counter+1)$`, the *counter* variable in the

context of the page), the following *WARN* message is output when the content is rendered via the `RenderingAgent`:

```
WARN <timestamp> (de.espirit.firstspirit.agency.RenderingAgent): context mutation
    detected in STRICT mode, setting of variable 'counter' in context PAGE
```

For more information on contexts in FirstSpirit, see also *FirstSpirit Online Documentation*, "Template development / Variables / Contexts".

67.72 Modifying FeatureDescriptor objects stored server-side via API

5.2R12

With newly-created API means, it is now possible to modify `FeatureDescriptor` objects stored server-side and to save them again. A typical use case is storing a FeatureDescriptor with a current revision (method `createFeatureBuilder` of the interface `FeatureAgent`, package `de.espirit.firstspirit.feature`, FirstSpirit Developer API).

67.73 SnippetAgent: API access to snippet evaluation 2018-07

The newly created API functionality `SnippetAgent` (package `de.espirit.firstspirit.access.store.templatestore`, FirstSpirit Access API) allows now getting a context-related access to the snippet evaluation of a FirstSpirit element.
In addition, an appropriate icon for a FirstSpirit element can be determined.

Methods:

- `getTypeIcon` returns an appropriate icon for the given element depending on the execution context of the agent.

- `getSnippetProvider()` returns an appropriate SnippetProvider for the given element.
  - `getSnippetProvider(IDProvider)` - with default fallback

  - `getSnippetProvider(IDProvider,   FallbackSettings)` - the parameter `FallbackSettings` defines the fallback behavior

- `fallback()` returns a new fallback object with default behavior.

The fallback object determines if and how the individual parts of the snippets (*Header*/ "Label", *Extract*) are to be resolved if the result of the snippet evaluation is empty. The default behavior is:

- *Header*: Returns the display name of the element.

- *Extract*: Returns the path to the element.

Using the methods `headerNone` and `extractNone` you can turn off the fallback behavior for the respective properties.

For more information on snippets see also *FirstSpirit Online Documentation* "Template development / Snippets".

67.74 Saving Elements 5.2R18

Saving of store elements and datasets can now be triggered programmatically via the API using the new interface `SaveOperation` (package `de.espirit.firstspirit.store.operations`, FirstSpirit Access API).

Unlike save actions triggered via the graphical user interfaces, saving an element or dataset via `SaveOperation` may be carried out even if the object to be saved contains erroneous or invalid data, e.g. due to a rule infraction (method `setValidationEnabled(false)`).

The method `setRecursionEnabled` may be used to specify that child elements should also be saved.

Furthermore, the method `setComment` may be used to add a custom comment which will be shown in version history.

67.75 Using an "indexField" to get search suggestions 2018-07

Previously, the `getSuggestions` method in the `SearchService` interface (FirstSpirit Access API, `de.espirit.firstspirit.access.search` package) supported an option to request search suggestions for language-dependent content. Search suggestions for language-independent content is now supported, too, if you do not specify a specific language object (`null`).
With the latest FirstSpirit release, an additional `getSuggestions` method has been introduced which permits the name of an `indexField` (used by the "Apache Lucene" search engine) to be specified in addition:

```
getSuggestions(long projectId, String indexField, String word, Language language);
```

`indexField` expects the name of the field in the Lucene index as a value.

67.76 SwingGadget Development: New Class "SwingFormViewMode"

5.2R9

A SwingGadget is the graphical representation of an input component in the FirstSpirit SiteArchitect. SwingGadgets are implemented in Java and contain graphical interface elements ("Swing") like buttons and input components as well as functional aspects like saving values. Furthermore user interactions and changes are evaluated by SwingGadgets and transferred to the visual representation of the component. Classes and methods required for implementing SwingGadgets can be found in the package `de.espirit.firstspirit.ui.gadgets.swing` (FirstSpirit Developer-API).

With the current version of FirstSpirit this package has been extended by the class `SwingFormViewMode`. Previously this class was available in the non-public API. Making it accessible was necessary because the class `AbstractValueHoldingSwingGadget` existing in the same package `de.espirit.firstspirit.ui.gadgets.swing` contains a method using `SwingFormViewMode` as a return type.

Compiling against the `fs-api.jar` resulted in the error

```
The type de.espirit.firstspirit.ui.gadgets.swing.SwingFormViewMode cannot be resolved.
It is indirectly referenced from required .class files
```

This error message no longer happens with the current version of FirstSpirit, the affected class is now part of the JAR file.

For more information regarding the implementation of SwingGadgets please see also *Plug-In Development / Universal Extensions / Input Components / SiteArchitect* (→*FirstSpirit Online Documentation*).

67.77 UrlAgent: Read Access to SEO/Short URLs of a Project 2018-06

Newly created API functionality allows read access to a list of all SEO and short URLs defined in a project, namely by using the methods `getSEOUrls()` and `getShortUrls()` of the interface `UrlAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API).

67.78 Changed Behavior for Data Stream Builder Implementations With Aspect "Filterable" 5.2R2

The interface `DataStreamBuilder` in the package `de.espirit.firstspirit.client.plugin.dataaccess` (FirstSpirit Developer API) allows configuration of a set of data which may be used in FS_INDEX or made available via reports. Using the aspect `Filterable`, developers may define a list of parameters which will be shown in the user interfaces of FS_INDEX element selection dialogs and reports so that users may specify filters in order to limit the data returned by the data stream. If the "Filterable" aspect of a Data Access Plug-In defines more than one parameter with the same name, only the first provided parameter with that name will be used.

For more information about the DataStreamBuilder interface, see *FirstSpirit Online Documentation*, Chapter "Plug-In Development / Universal Extensions / Data Access / Data Stream / Builder".

67.79 Improved detection of identical or compatible module resources 5.2R6

The use of identical resources (e.g. a library) in various product components (e.g. FirstSpirit server, additional modules) frequently causes conflicts in practical application. Example: If, for example, FirstSpirit internally uses "SLF4J", version 1.6.1 for logging within a web application, a conflict arises if a module developer attempts to use another version of "SLF4J" for a customer-specific module implementation. Likewise, such a conflict may arise in global module resources: these are accessible with a server-wide scope and may thus also cause conflicts with other modules. The current FirstSpirit version enables detection of identical or compatible resources used in various product components. This requires several data:

Assignment of unique identifiers for resources: If a library is added to a module as a resource, the component descriptor must contain a unique name for the resource. It is recommended that names are not just unique but follow a set syntax (following the Maven schema) in order to enable identification of identical or compatible resources, e.g.:

```
<web-resources>
    <resource name="org.slf4j:slf4j-api" version="1.6.4">lib/slf4j-api-1.6.4.jar
    </resource>
</web-resources>
```

The name (following the Maven schema) begins with a "groupID" (here: `org.slf4j`), followed by an "artifactID" (here: `slf4j-api`), separated by a colon. The "groupID" is a grouping identifier (similar to a Java package name) and serves as a unique identifier of the producer. It usually is the reversed domain name used by the producer. The "artifactID" is the resource's name (see Maven conventions).

Version information for resources: When resources with identical names are used, FirstSpirit attempts to detect if these resources are compatible with each other. Alongside the unique identifier ("name"), this also requires information about the version of the delivered resource ("version") and can optionally include information about the minimum compatible version ("minVersion") and the maximum compatible version ("maxVersion"):

```
<web-resources>
    <resource name="org.slf4j:slf4j-api" version="1.6.4"
     minVersion="1.6.1" maxVersion="1.7.2">
      lib/slf4j-api-1.6.4.jar
    </resource>
</web-resources>
```

For "maxVersion", the definition `minVersion="1.6.1" maxVersion="1.9.9"` is allowable as long as the library remains stable within a minor version line (even though this version of the library does not yet exist at the time the module is generated).

If several different versions of a library are added to FirstSpirit, this information can be used to identify the best applicable version of the resource.

Rules:

- If several mentions of a resource with the same unique identifier omit version information ("version"), the resources are deemed incompatible with each other.

- If several mentions of a resource with the same unique identifier but different versions ("version") omit "minVersion" and "maxVersion", the resources are deemed compatible. The latest version of the resource will be used.

- If several mentions of a resource with the same unique identifier but different versions ("version") do carry compatibility information ("minVersion" and "maxVersion"), the latest version of the resource which is compatible with all modules will be used.

  - If "minVersion" is omitted, the compatibility range does not have a lower boundary ("0" to "maxVersion").

  - If "maxVersion" is omitted, the compatibility range does not have an upper boundary ("minVersion" to infinity).

67.80 Improved detection of duplicate resources in modules 2019-02

Modules with identical web resource definitions (tag `<resource>`) but different scopes (attribute `scope`) will no longer be reported as incompatible. In the past, an error message was displayed, e.g.: "The application 'xyz' could not be installed because of a resource conflict: ..."

Note: It is meaningless to specify a scope for web resources because they are always available within the web application.

67.81 Use of new Java API for date calculation 2018-07

Cessation of support for Java 7 has enabled some applications of the outdated Java class `java.util.Date` to be adapted to a more modern Java API (`java.time`) in the FirstSpirit Developer API.
The changes affect the following interfaces:

- `UserStatisticsAgent` (`de.espirit.firstspirit.agency` package)
  The previous method `getLastLoginAsDate(long  userId);` (return value: `Date`) has been replaced by the new method `getLastLogin(long  userId);` (return value: `Optional<LocalDate>`).

- `MaintenanceModeInfo` (`de.espirit.firstspirit.server` package)
  The previous methods `remainingDurationOfCurrentStageInMillis();` and `getStartingTimeOfStageAsDate(@NotNull  MaintenanceStage  stage);` have been replaced by the new methods `remainingDurationOfCurrentStage();` and `getStartingTimeOfStage(@NotNull MaintenanceStage stage);`.

In this context, the `getLastLoginAsDate(long userId);`, `remainingDurationOfCurrentStageInMillis();`, and `getStartingTimeOfStageAsDate(@NotNull MaintenanceStage stage);` methods have been discontinued ("deprecation") and can be omitted from subsequent versions of FirstSpirit.

67.82 Triggering a preview update via API (SiteArchitect and ContentCreator) `5.2R7`

In order to make changes to data visible in the preview (SiteArchitect and ContentCreator), an update of the preview must be triggered. Generally, this happens automatically upon saving forms, sections, pages, datasets, etc.

As of the current FirstSpirit version, it is also possible to trigger a preview update via API for actions and changes that do not affect content-relevant data (e.g. changes made from within a workflow). In the past, preview updates could already be triggered in ContentCreator via `WE_API.Preview.reload()`.

In both SiteArchitect and ContentCreator, an update of the preview may now be triggered via the newly-implemented interface `PreviewOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API).

- The method `perform()` triggers a reload of the currently displayed preview.

- Using the method `setElement(IDProvider element)`, an ID of an element may be supplied for which the preview should be updated (page reference, page, section, dataset, medium, etc.). If the supplied element cannot be displayed in the preview, an error message indicating this will be output ("The element 'xyz' cannot be displayed in the preview.").

Sample script to trigger a preview update for a page reference (ID 866948):

```
import de.espirit.firstspirit.agency.OperationAgent;
import de.espirit.firstspirit.ui.operations.PreviewOperation;
import de.espirit.firstspirit.agency.StoreAgent;
import de.espirit.firstspirit.access.store.Store;
// -- fetch element from site store
storeAgt = context.requireSpecialist(StoreAgent.TYPE);
sitestore = storeAgt.getStore(Store.Type.SITESTORE);
element = sitestore.getStoreElement(866948);
print(element);
// -- load and perform preview operation with element
operationAgt = context.requireSpecialist(OperationAgent.TYPE);
operation = operationAgt.getOperation(PreviewOperation.TYPE);
operation.setElement(element);
operation.perform();
```

67.83 Creating maintenance mode schedule tasks via API 5.2R6

FirstSpirit offers maintenance mode functionality which allows shutting down the server in an orderly fashion at a predetermined time in order to perform upgrades, repairs, or other maintenance tasks. Depending on the configuration, before and/or during the maintenance period, users will not be allowed to log on to the server or to selected projects, users currently logged in will be notified that the server will be shut down, etc. Until now, this functionality could only be set using the GUI (ServerManager / Server / Properties / Schedule management / Action "Maintenance mode"):

Configuration of a maintenance mode action

As of the current FirstSpirit version, maintenance mode schedule entry actions can now be created via API. The new interface `MaintenanceModeTask` (FirstSpirit Developer API, package `de.espirit.firstspirit.access.schedule`) allows creation and configuration of such a schedule entry action analogous to configuration via the GUI.

Moreover, you can use the new interface `MaintenanceModeInfo` to query via API if a maintenance mode schedule is already running on the server. The new interface `MaintenceModeAgent` has been created for terminating running maintenance mode schedules. Server administrator permission is required for this. In return, the method `stopMaintenance(long)` (FirstSpirit Access API, package `de.espirit.firstspirit.access`, interface `AdminService`) has been discontinued ("Deprecation") and can be omitted in a following FirstSpirit major version.

For further information about the maintenance mode schedule entry action, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit ServerManager / Schedule entry planning / Server-based actions / Maintenance mode".

68 Modules (general)

68.1 Distribution of FirstSpirit web applications as modules (.fsm) `5.2R4`

The global web applications included in FirstSpirit (fs5root, fs5preview, fs5webedit, …) are now provided as FirstSpirit modules (FSM files) - previously, these were provided as Zip files. This change supports a unified distribution mechanism and requires no manual configuration of a FirstSpirit server and/or FirstSpirit projects.

68.2 Distribution of the FirstSpirit web applications as modules (.fsm) `5.2R6`

FirstSpirit version 5.2R3 implemented a new roll-out behavior for the FirstSpirit web applications: while the global web applications (fs5root, fs5preview, fs5webedit,…) have previously been distributed in the form of ZIP files, they are since distributed in the form of FirstSpirit modules (FSM files).

After a transition period, the previously used ZIP files have been permanently removed from the file `fs-server.jar` as of the current FirstSpirit version. This leads to a significant decrease in the file size of `fs-server.jar`.

68.3 Library dependencies added in FirstSpirit web applications `5.2R6`

Missing library dependencies have been added for all internal FirstSpirit web applications. The relevant .jar files have been added to the individual modules.

When updating the FirstSpirit Server, updating the following modules is recommended (assuming they are already installed):

- FirstSpirit Basic Search ("fs-search.fsm")

- FirstSpirit Dynamic Database Access ("fs-integration.fsm")

- FirstSpirit Security ("fs-security.fsm")

69   Modules: Content Transport

69.1   Moving datasets and changing the explicit/implicit state of elements

5.2R20

The functionality "FirstSpirit ContentTransport" enables transport of project contents from a source project into a target project. For this, the desired contents will be collected or gathered into so-called "features".

If folders have previously been added explicitly to a feature, the current child tree (i.e. all child elements at the time of export) was taken into account for each export. Therefore, if new child elements have been added to the folder since the feature was first created, these child elements will be included in the subsequent exports. For example, if child elements have been removed from the folder since the feature was first created, they will be missing in subsequent exports. In FirstSpirit version 5.2R20 and later, this rule is now also possible for datasets and data sources.
The following options for data sources can be selected:

- **Add Content Source:**
  Only the selected data source (without datasets) is added to the feature (corresponding to the previous "Add to Content Transport feature" for data sources).
  To include datasets in a transport, one of the following two options should be selected.

- **Add all displayed datasets (explicitly):**
  The datasets currently displayed in the workspace are added to the feature (corresponding to the previous "Add all displayed datasets to feature" on data sources or "Add to Content Transport feature" on datasets). Datasets of the data source that are not displayed in the overview due to filtering, searches, etc., are not taken into account. In addition, no datasets are taken into account that are added to or deleted from the selected data source at a later point in time. If you want the current status of the datasets of the selected data source to be taken into account for future exports, select the option "Add all datasets (automatically via Content Source)".
  If you want to include not only the datasets in a transport, but also the data source, you can add it to the feature in the tree structure using the context menu option "Add Content Source" or activate the option "Content Source is part of the feature" in the "Included objects" section.

- **Add all datasets (automatically via Content Source)**

This adds all datasets of the data source to the feature. This also takes into account datasets that are not displayed in the overview due to filtering, searches, etc. During each transport, all datasets are exported that are contained in the data source at the time, including datasets that are created in the data source after the feature is created.

If you want to include not only the datasets in a transport, but also the data source, you can add it to the feature in the tree structure using the context menu option "Add Content Source" or activate the option "Content Source is part of feature" in the "Included objects" section.

Other functions:

- The "Add Content store folder" function adds all data sources contained in the folder to the feature (without datasets, similar to "Add Content Source").

- The "Add Dataset" function adds only the selected dataset to the feature (similar to "Add all displayed datasets (explicitly)").

The state of objects already added to the feature can be checked and modified in the "Included objects" area and in the workspace.

Included objects

In the "Included objects" area, the state is displayed as follows:

Add Content Source:
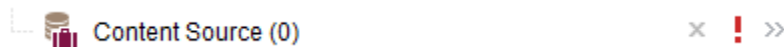
The name of the data source is displayed in normal text. The number of datasets taken into account is (0). You can check and modify the implicit/explicit state if necessary by right-clicking (see below). Alternatively, the state can also be checked in the workspace and modified if necessary.

Add all displayed datasets (explicitly):
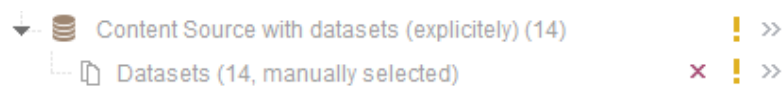
The data source is not part of the feature. Only the datasets contained at the time the feature was initially created are taken into account during transport. The number of datasets taken into account, in addition to the "manually selected" note, is displayed in brackets after the name of the data source and in a dataset node under the data source.

You can check and modify the implicit/explicit state if necessary by right-clicking (see below).

If the data source is also to be included in transport, it can be added to the feature in the tree structure using the context menu entry "Add Content Source" or by activating the option "Content Source is part of feature" in the "Included objects" area. The display is then as follows:
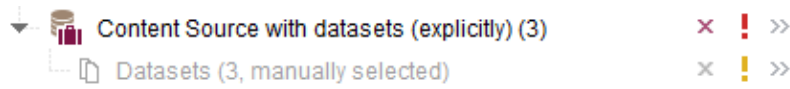
Add all datasets (automatically via Content Source):

The data source is not part of the feature. All the datasets contained in the data source at the respective time are taken into account during transport. The number of datasets taken into account, in addition to the "automatically via Content Source" note, is displayed in brackets after the name of the data source and in a dataset node under the data source.

You can check and modify the implicit/explicit state if necessary by right-clicking (see below).

If the data source is also to be included in transport, it can be added to the feature in the tree structure using the context menu entry "Add Content Source" or by activating the option "Content Source is part of feature" in the "Included objects" area. The display is then as follows:
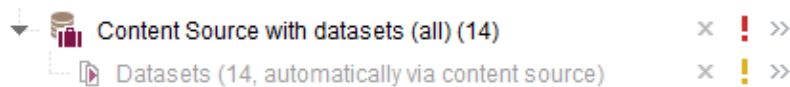
Implicit/explicit state

The state of an object as implicitly or explicitly added element can now be checked and modified for all object types simply by right-clicking on the desired element under "Included objects" ("implicit/explicit state"):
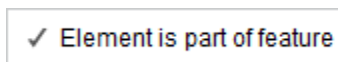
Active / box ticked: The object was explicitly added. The object can be removed from the feature by clicking on the tooltip (corresponds to the "x" icon). Elements with this state are also identified by a "briefcase" icon.
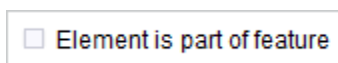
Active / box not ticked: The object has been implicitly added as the parent element. The object can be explicitly added to the feature by clicking on the tooltip. All child elements are also added automatically.

☑ Element is part of feature

Inactive / box ticked: The object was implicitly added as a child element. The implicit/explicit state for these elements can only be modified from the parent node.

For data sources with datasets, the following additional options can be selected (right-click on the dataset node):

- **Automatically add all datasets of the content data source to the feature:** If this option is active (ticked), all the datasets contained in the data source at the respective time are taken into account during transport. If this option is inactive (not ticked), only the datasets contained at the time the feature was first created are taken into account during transport. If required, the option can be activated or deactivated by clicking on it.

- **Remove all datasets:** By clicking on the tooltip, all datasets including the data source can be removed from the feature (corresponds to the "x" icon).

As part of an effort to standardize context menus, the new layer in the context menu for adding objects to a feature in the tree view is now also valid for all other object types (old: "Add to Content Transport feature"; new: "Add Content Transport / Add <object type>").

70 Modules: Corporate Content

70.1 Refresh package display 5.2R4

The functionality "FirstSpirit Corporate Content" allows the automated distribution of templates and content among various projects on a server, such that content can be reused comfortably across FirstSpirit projects.

A package with its contents and properties can be shown in the area "Corporate Content" in "Multisite Management".

Using the new icon (from FirstSpirit version 5.2.312) in the icon bar, the display of the current package can be refreshed:
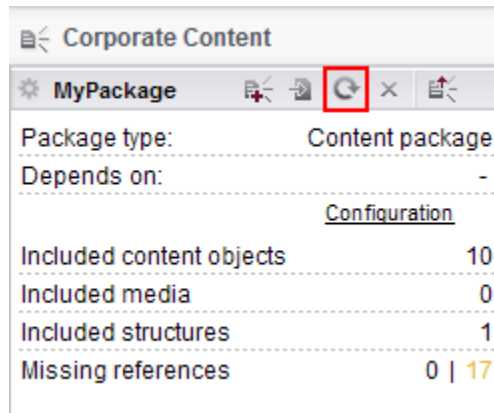
FirstSpirit Corporate Content: Refresh package display

This may be necessary e.g. if an element contained within the package was afterwards modified to include a reference.

For further information, see Module documentation for "FirstSpirit CorporateContent", chapter "Corporate Content (package store)".

70.2   Editing multiple packages   5.2R4

The functionality "FirstSpirit Corporate Content" allows automatic distribution of content between different projects on a server.

Creation and maintenance of packages can be carried out via the link "Create or edit a package" or the icon

in the area "Corporate Content" in FirstSpirit SiteArchitect.

Previously, if a package was already opened for editing, the message "You are already editing package '[package name]'. Please close this package first." When creating a new package, this message was displayed only after configuration of the package via the dialog "Create package" took place, and the new package was created regardless of this notification.

As of FirstSpirit version 5.2R4, this message will no longer be displayed. Instead, the newly created or loaded project will be displayed. If another package was loaded already, any modifications to that package will be saved automatically before the newly created or loaded package is displayed.

For further information, see *Documentation for FirstSpirit Corporate Content*, chapter "Creating or loading a package".

70.3   ContentTransport: Archival of deleted feature collections   5.2R7

The functionality "FirstSpirit ContentTransport" enables transport of project contents from a source project into a target project. The desired contents are bundled or collected into so-called "features".

Features in the dialog "Create or load a feature" / "Load feature from server" / "Choose"
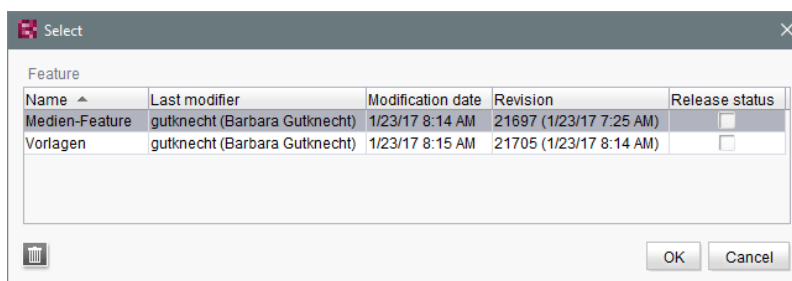
may be deleted from the server using the "Delete" icon:

As of the current FirstSpirit version, these deleted features may be archived and thus removed from the FirstSpirit repository via the schedule action "Archive old project states". To do so, activate the option "System data" in the schedule action:
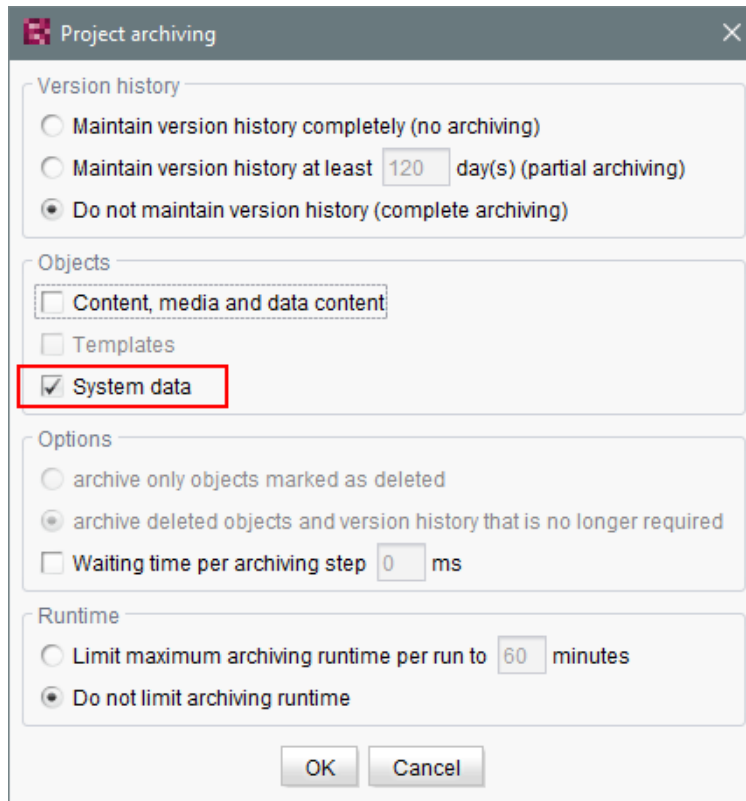
The most recent revision will not be deleted.

For further information, see

- Module documentation for "FirstSpirit CorporateContent", chapter "Creating or loading a feature"

- *FirstSpirit Manual for Administrators*, chapter "Archive old project states"

70.4   ContentTransport: Deleting feature collections 5.2R7

The functionality "FirstSpirit ContentTransport" enables transport of project contents from a source project into a target project. The desired content is collected into so-called "Features". Via the button "Save feature"

such a feature may be stored on the server.

In order to simplify the selection of a feature, the "Select" dialog (reached via "Create or load a feature / Load feature from server") has been improved:
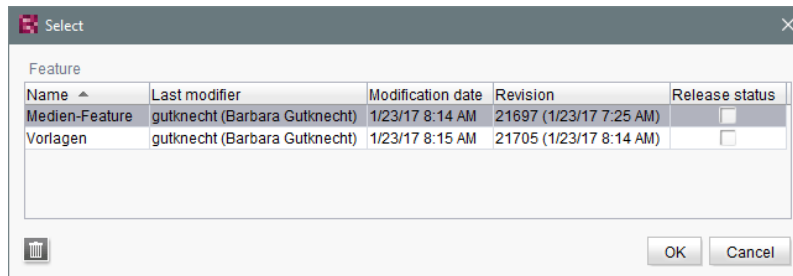
The dialog now allows sorting by column and provides detailed information about a feature in a tool-tip.

Furthermore, in order to improve readability of the feature list, features that were once stored on the server but are no longer needed may now be deleted from the server. Via the button "Delete"

the selected feature or features may be deleted following a confirmation request. Selection of multiple features is possible.

Deletion of feature collections is final and cannot be undone.

For further information, see Module documentation for "FirstSpirit CorporateContent", chapter "Content Transport / Creating or loading a feature".

70.5 Removal of write permissions in subscribing projects ("Changeable") 5.2R15

For packages, it is possible to specify whether they should be "changeable" or not in the dialogs "Create package" and "Edit package properties":
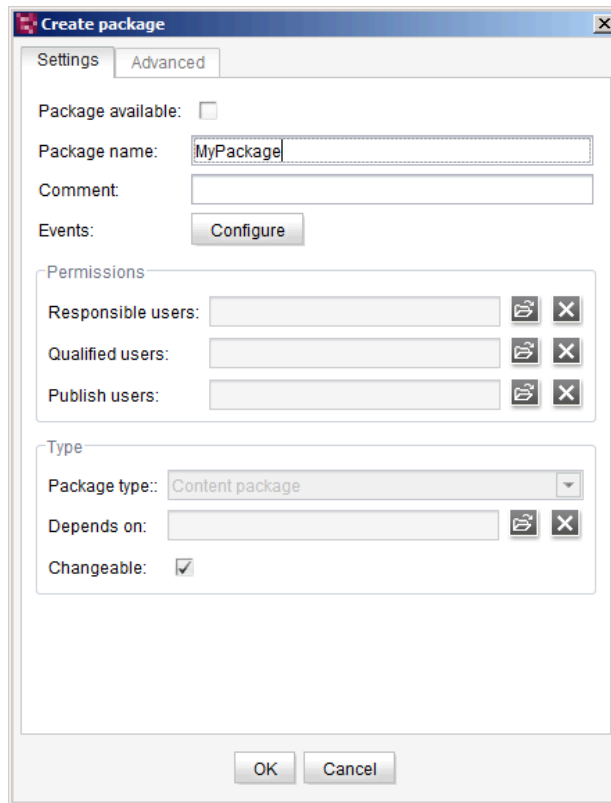
If the checkbox "Changeable" is checked, the target projects are granted write permissions on the imported objects. If the checkbox is not checked, the imported objects may be viewed and used in the target projects, but they cannot be modified.

If the checkbox' checkmark is removed in the **master (or source) project** (removing write permissions), this setting must be carried over manually into the subscribing projects. In order to more quickly identify the affected projects, these will now be displayed in a dialog when deactivating the option in the master project:
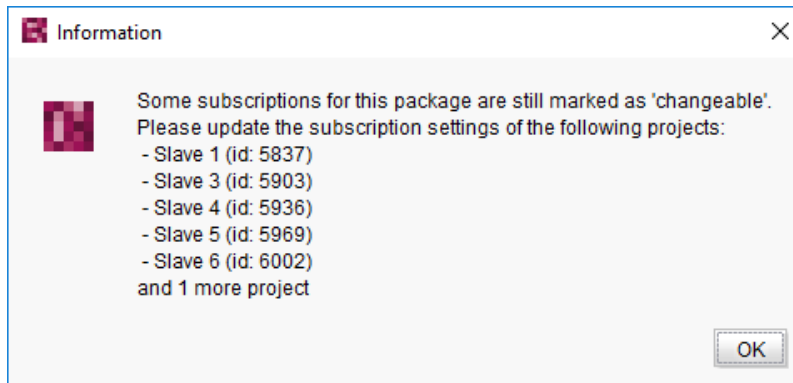
In this case, the checkbox "Changeable" is now deactivated in the subscribing projects, i.e. the checkbox' checked state cannot be modified:
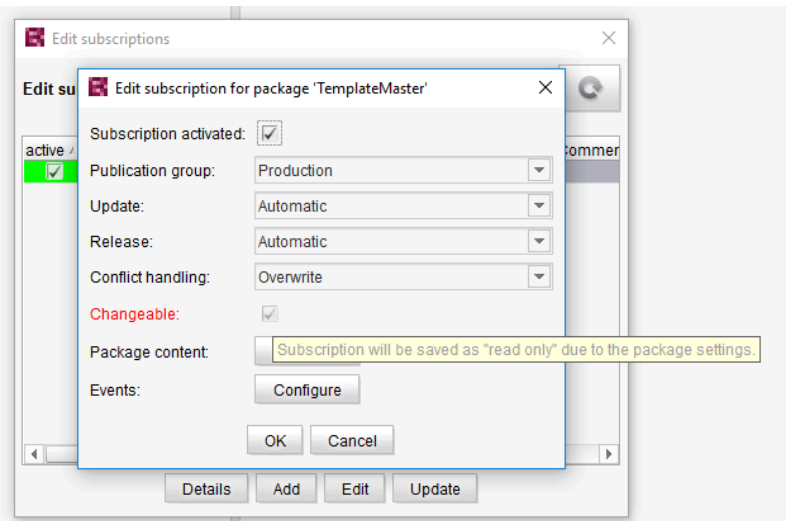
The tooltip associated with the checkbox indicates that the currently stored setting (package is changeable) does not comply with the package setting in the master project (package is not changeable); this may be confirmed by closing the dialog via "OK", thereby storing the package subscription as not changeable. The package's objects can then no longer be edited in the target project.

For further information, see Module documentation for "FirstSpirit CorporateContent", chapters

- "Creating a package – Settings tab"

- "Creating a subscription for a package"

70.6   Multisite Management: Export of image resolutions 5.2R7

The multisite management functionalities "FirstSpirit ContentTransport" and "External Synchronization" enable transport of project contents as well as of project properties, e.g. languages, resolutions, etc.

If resolutions are transported from a source project into a target project using ContentTransport or External Synchronization, e.g.
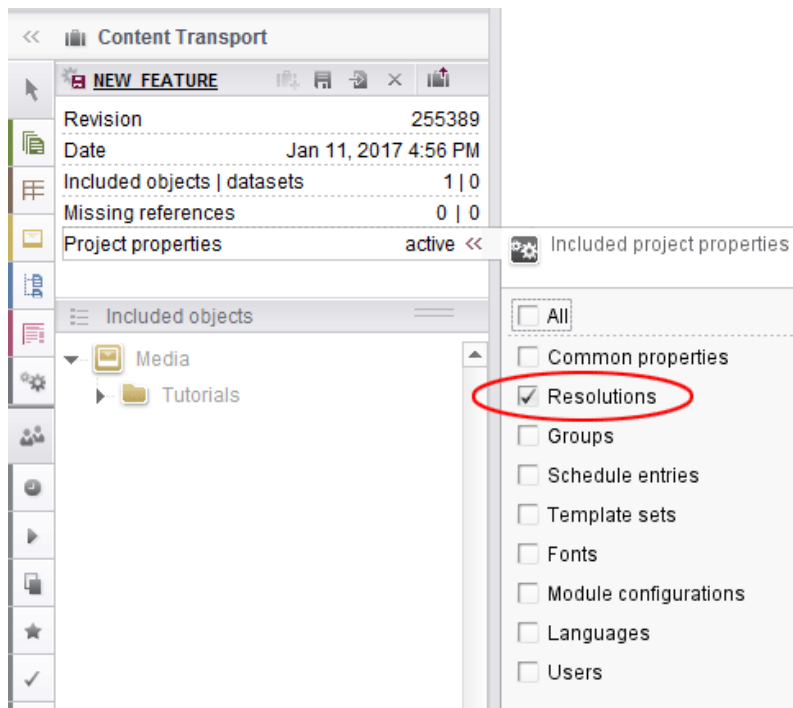
the order of resolutions in the target project now matches their order in the source project.

Display in ServerManager, area "Resolutions":
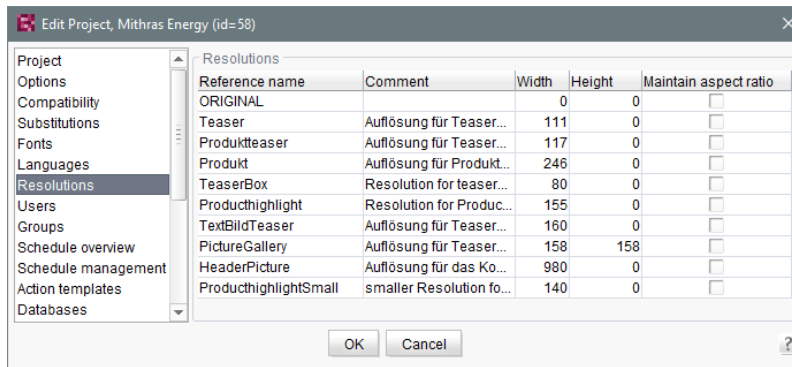
Display in the Media store of SiteArchitect:
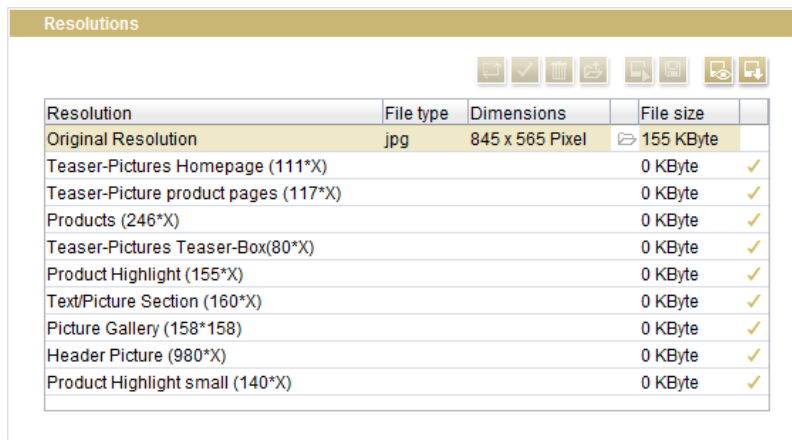
Previously, resolutions were ordered by reference name after export/import.

In order to apply the new behavior, a new export must be made.

For further information, see

- Module documentation for "FirstSpirit CorporateContent"

- *FirstSpirit Manual for Administrators*, chapter "Resolutions"

70.7 Multisite Management: Transport of table templates into projects with different language counts 5.2R7

The multisite management functionalities "FirstSpirit ContentTransport" and "External Synchronization" enable transport of project contents and project properties from a source project into a target project.

If a table template is transported from a source project into a target project which is configured with a different set of languages, the columns of languages that are not present in the source will be removed in the target project. Until now, this also caused removal of the mapping for these additional, non-present languages in the target project, e.g.
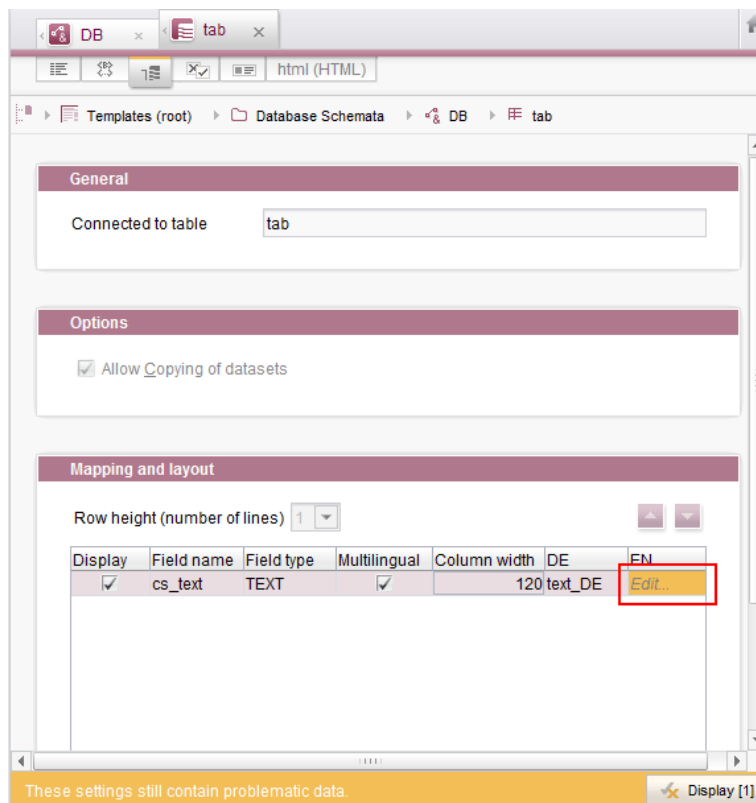
In this case, the mapping had to be adjusted manually if the missing language column was added to the database schema in the target project.

As of the current FirstSpirit version, the mapping will be preserved. In the "Mapping" tab, the missing language column will be visualized with a red highlight after import into the target project:
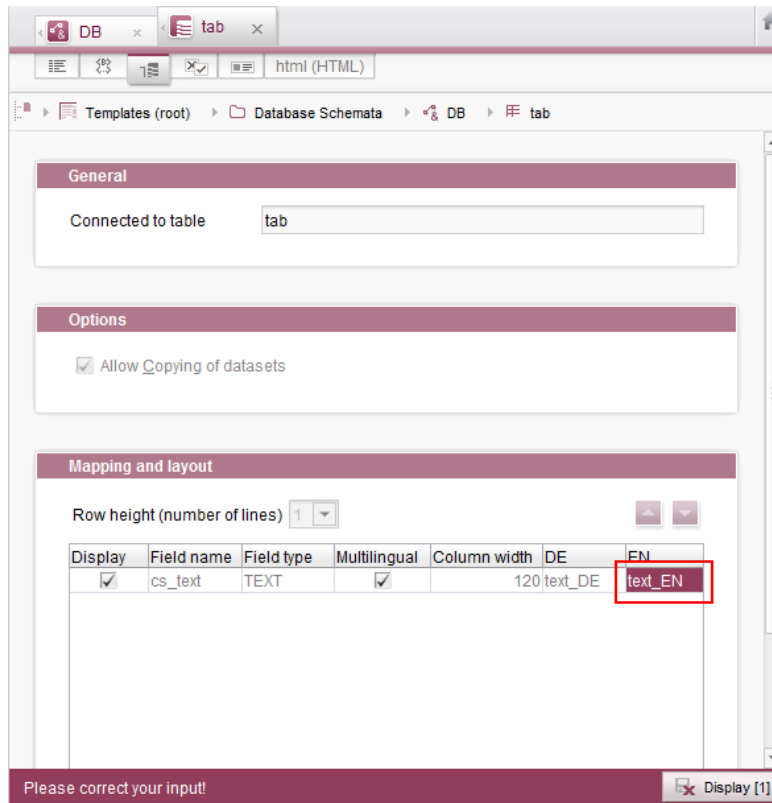
In order to restore the mapping, it is now sufficient to create the missing language column anew in the database schema, e.g.:
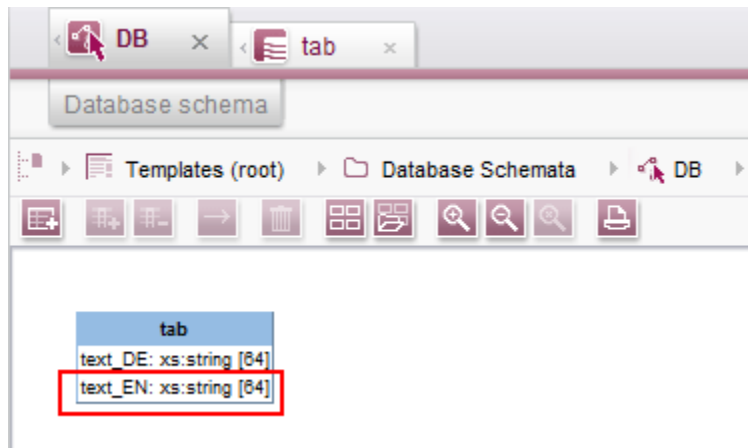
The mapping will then be adjusted automatically.

70.8 Behavioral change for CorporateContent packages currently being edited within SiteArchitect `2018-12`

Editing a CorporateContent package by other users while it is being edited by an administrator could lead to problems. The functionality was improved within SiteArchitect with FirstSpirit 2018-12. If a CorporateContent package on the master server is edited by an administrator, no further packet-changing actions can be performed by other users. An error message is displayed instead:
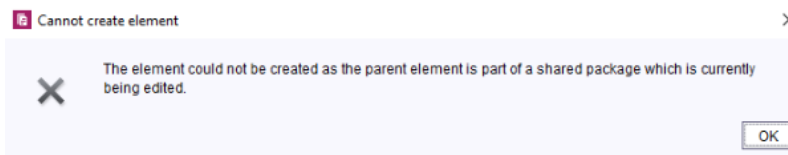
Error message

> **!** The behavioral change only applies to actions within SiteArchitect.

70.9 Allowed section templates are now only "optionally" required during an import process `5.2R13`

Restrictions can be defined for page templates (for each content area) with regard to the allowed section templates ("Properties / Content areas" tab, "selected" option, "Allowed section templates" area):
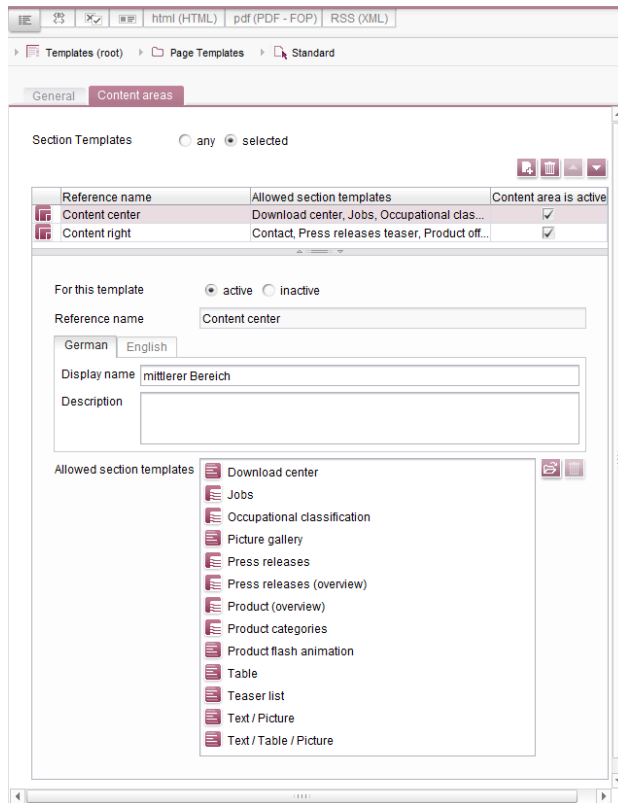
The dependencies between page template and section template(s) when using "FirstSpirit Content Transport" were previously classified as "required". This meant, for example, that all of the allowed section templates belonging to a specific page template had to be imported at the same time as the page template. If the respective templates were missing in the target project, it was not possible to carry out the import. This prompted the following error message:

```
ERROR 10.02.2016 09:53:49.958 (de.espirit.firstspirit.impl.access.ScriptContextImpl):
Could not Install feature.
de.espirit.firstspirit.store.access.feature.FeatureInstallException: Error installing
feature. Broken id reference (id=57371, projectId=8, uid='home',
type=SectionTemplateImpl)
```

In the current FirstSpirit version, such dependencies between page template and allowed section templates are now classified as "optional": It is possible to carry out an import even if the target project does not contain the dependent templates. In this case, the non-resolvable dependencies are removed from the page template in the target project, i.e., the configured allowed section templates in the page template if the section templates are missing in the target project.

Use the "Required missing references" or "Optional missing references" area to view the missing dependencies for a FirstSpirit object:

previous behaviour   new behaviour
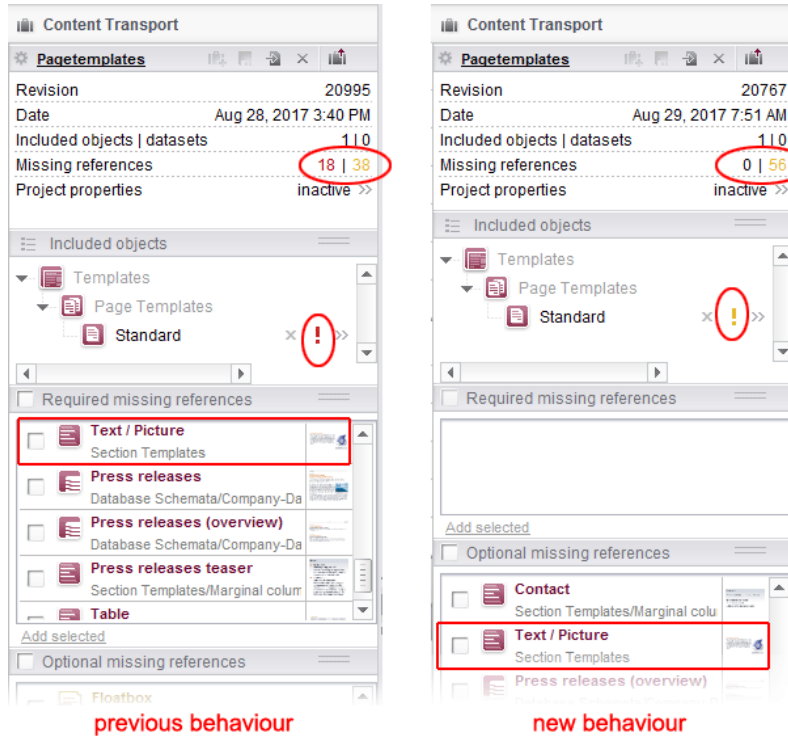
71   Modules: Corporate Media

71.1   Limiting selections from remote projects to objects with a release state 5.2R4

The functionality "FirstSpirit Corporate Media" enables access of elements between different projects on the same FirstSpirit server. In particular, a project (a "target project") may reference elements stored in another project (a "remote project"), such that objects (e.g. media) that are stored in a central project may be used in many different projects. In this case, the target projects only reference the objects, which remain stored in the remote project.

Referencing objects in remote projects is primarily carried out using the input component FS_REFERENCE. Here, the type of the referenced object is irrelevant: references can be made to media (images and files), page references (Site Structure store), as well as to elements of any other store,

including folders. In general, the selection dialog always shows selectable objects in their current state. When a project is generated, only the release states of objects will be included in generation.

From FirstSpirit version 5.2R4, the remote project configuration can be set to only allow selection of objects that have been released at some time. This setting can be configured in FirstSpirit ServerManager, "Project properties / Remote projects".
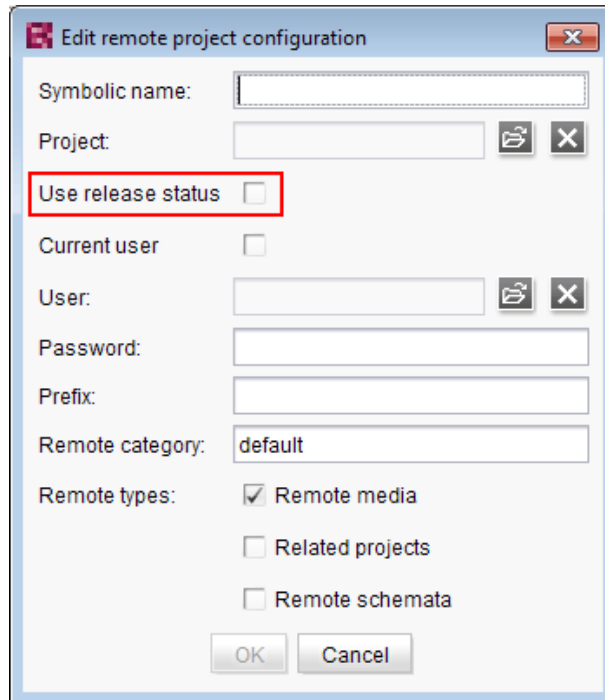
If the option "Use release state" is **activated**, the selection dialog will only show objects which have been released at least once. If such an object has been modified after the most recent release, the selection dialog and the preview will show the object in its current state, generation will, however, use the data of the object's most recent release state.

If the option is **deactivated**, the selection dialog will also show objects which have never been released. During generation, this may lead to invalid references and error messages in the generation log that will indicate such invalid references. Using the parameter `autoReleaseAfterUpload` in association with `upload`, media, which are uploaded via the input component FS_REFERENCE, can automatically be released, e.g.

```
<FS_REFERENCE name="st_reference" upload="yes">
    <LANGINFOS>
      <LANGINFO lang="*" label="Remote project"/>
    </LANGINFOS>
    <PROJECTS>
      <REMOTE name="remote" autoReleaseAfterUpload="yes"/>
    </PROJECTS>
</FS_REFERENCE>
```

For further information, see

-   *FirstSpirit Manual for Administrators*, chapter "Remote projects"

-   *FirstSpirit Online Documentation*, "Template development / Forms / Input components / REFERENCE"

-   *Documentation for FirstSpirit Corporate Media*

-   *Documentation for FirstSpirit SiteArchitect*, chapter "Reference selection (FS_REFERENCE)"

-   *FirstSpirit Manual for Editors (ContentCreator)*, "Editing the preview page / Standard input elements / Reference selection (FS_REFERENCE)"

71.2   Specifying URL creation method for remote projects `5.2R10`

FirstSpirit enables access from one project (called "target", "master", or "local project") to other projects (called "remote projects") which are present on the same FirstSpirit server. This allows objects (e.g. media) which are managed in a centralized project to be used in various projects. In the target projects, such objects are only referenced and remain stored in the remote project.

Previously, if some other method of path generation ("URL creator") than "Default URLs" should be used for the remote project, this had to be carried out via a script or a module. If a URL creator was not explicitly set for a remote project via script or module, the URL creator "Default URLs" was used implicitly.

As of the current FirstSpirit version, it is now possible to specify the desired URL creator for a remote project in the remote configuration settings of the master project in ServerManager, using the option "Path generation" ("ServerManager / Project properties / Remote projects / Add" or "Edit"):
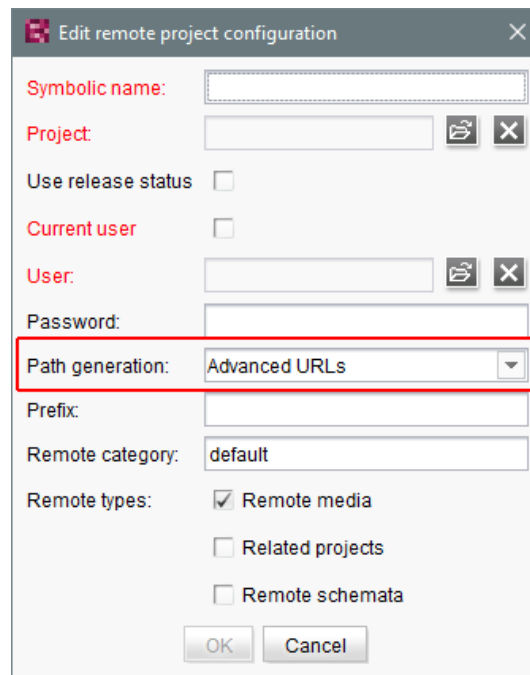
This option's combo box includes a list of all available URL creators. If the selected entry is "Advanced URLs", references from the master project to this remote project will be generated using this URL creation method.

By default, the method "Default URLs" will be used. If a different URL creator was already selected for a remote project prior to an update to the current FirstSpirit version, this selection will be preserved and accordingly displayed in the combo box.

Within the scope of this feature, the validation behavior of this dialog was also optimized: if not all mandatory fields contain values, the button "OK" is inactive, preventing saving the configuration. Missing values will be indicated by red type. The display "Not available" indicates that the selected URL creator is not available on the server, and the name of the missing URL creator is displayed as well; this may occur if the module providing this URL creator has been uninstalled.

The selected URL creator will also be displayed in the overview "Remote projects" (project properties):
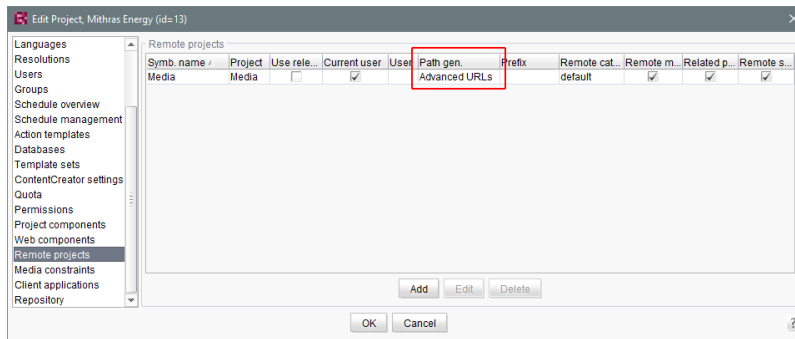
For further information, see

- *FirstSpirit Manual for Administrators*,
    - chapter "Remote projects"

    - chapter "Execute generation"

- *FirstSpirit Online Documentation*,
    - "Advanced topics / Remote access"

    - "Advanced topics / Generation"

- Module documentation for "FirstSpirit CorporateMedia"

72 Modules: FOP

72.1 Specify Standard Image Resolution 5.2R4

Apache FOP ("Formatting Objects Processor") allows output of FirstSpirit content in PDF format. The support for Apache FOP in FirstSpirit is realized via a module: *fs-fop.fsm*.

Some image manipulation programs (e.g. Adobe Photoshop) do not specify "dpi" (dots per inch) settings in image files and potentially save files at a resolution of 96 dpi. By default, Apache FOP assumes a resolution of 72 dpi if the image file does not contain explicit resolution information (see also: http:// xmlgraphics.apache.org/fop/0.95/embedding.html). This discrepancy can cause undesired rescaling of images which do not contain resolution information such that these images appear blurry.

As of FirstSpirit version 5.2R4, the structure variable ("Site Structure store / Menu level / Variables")

```
fs_fop_source_resolution
```

specifies the default image resolution for Apache FOP:

- If the variable is not explicitly set, an image resolution of 72 dpi will be used.

- In order to explicitly set a different default resolution (e.g. 96 dpi), the desired menu level must contain a variable, named as shown above, with the desired value, e.g.
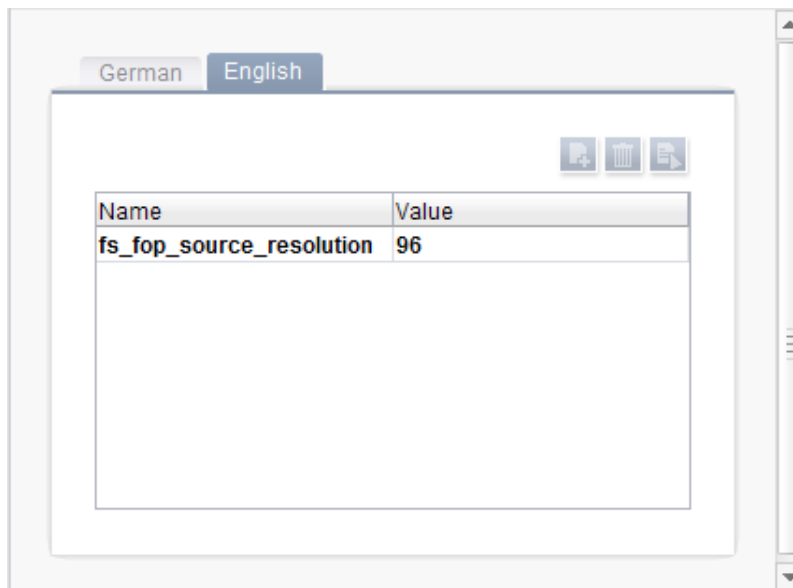
For further information about the definition and evaluation of structure variables, see *FirstSpirit Online Documentation*, "Template development / Variables / Definition and output / in menu levels".

73 Modules: OfficeConnect

73.1 Pasting as plain text with Ctrl+Shift+V 5.2R11

When using the FirstSpirit module "OfficeConnect", contents from the clipboard can now be pasted as plain text - without formatting, links, images, etc. - via the keyboard shortcut Ctrl + Shift + V . The ruleset selection dialog will not be shown; the text will be pasted directly at the desired position in the DOM editor.

In this context, the error message "No compatible format found in clipboard!" which was previously displayed when using Ctrl + Shift + V has been removed.

For further information, see Module documentation for *FirstSpirit OfficeConnect*.

74 Modules: Security

74.1 Improved Problem Recognition When Accessing an Access Control Database 5.2R20

When publishing via the FirstSpirit publication servlet (module: "FirstSpirit Security"), an error message is now output if the target side attempts to communicate with an unusable access control database. (This error may appear after conversion of the access control database to the Berkeley DB 7 format, for example.) Use of this change requires an update of the module "FirstSpirit Security" in the web application on the target side.

75 Repository

75.1 Berkeley DB 7: Optimizations 5.2R20

Berkeley DB 7 now checks for sufficient available storage space. By default, if available storage space is below a threshold of 512 MebiBytes (approx. 536 MB), further write operations in the Berkeley database are no longer possible. Error message:

```
Disk usage is not within je.maxDisk or je.freeDisk limits and write operations
   are prohibited.
```

Note: The storage space Berkeley DB 7 checks for is independent of the setting for monitoring of available storage space which may be configured via FirstSpirit ServerManager ("Server / Properties / Global server properties / Directories for disk space check").

For further information, see *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Repository".

75.2 Oracle Berkeley DB 7 (EAP) 5.2R18

Oracle Berkeley DB is used as standard in FirstSpirit as a repository for saving content data, until now, in versions 3 and 5. In order to benefit from performance advantages, to remain at the forefront of technical development, and last but not least, for security reasons, plans are in place to update the

internal Berkeley DB to version 7 in the near future. For more information please see also Chapter "Oracle Berkeley DB 7".

Individual project repositories can be converted to version 7 as of the current FirstSpirit version. The related function can be found in FirstSpirit ServerManager under "Project properties – Repository", option "Backend":
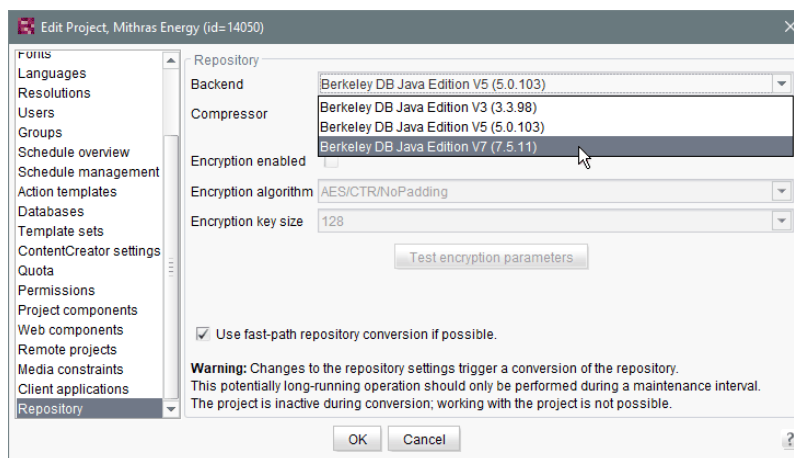
This function can be used to gather experience on the conversion process and is currently in beta test stage. Should problems unexpectedly be encountered when using Berkeley 7, these should be reported to e-Spirit immediately to enable them to be resolved before the official release of Berkeley 7. Using Berkeley 7 requires at least Oracle Java 8.

Version 5 is the default for new and imported projects. It is planned for the medium-term only to support Oracle Berkeley DB 7.

- Migration **from version 5 to version 7** generally takes just a few seconds if the option "Use fast-path repository conversion if possible" has been activated.

- When switching **from version 3 to version 7**, converting to version 5 first is recommended, with activated "Use fast-path repository conversion if possible" option, too.
  A direct switch from 3 to 7 can be completed; however, accelerated conversion is then not possible ("Use fast-path repository conversion if possible" option).

- **Conversion back** to an older Berkeley version is also possible but takes much longer and requires additional disk space.

When the user confirms the selection with "OK", the system starts to convert the data using the desired settings. The relevant project is deactivated during the process.

To prevent any data loss, anyone using the project should log off first. Changes to the repository settings can take some time and should only be performed during a maintenance interval. We recommend you create a data backup before starting a repository conversion. Use of the new Berkeley version 7 was subject to extensive systematic quality assurance checks; however, as this is a significant version upgrade and it concerns a third-party product, this version should be tried out on a test system before being launched on production systems.

Berkeley version 7 is, like the other Berkeley DB variants, implemented in form of a system module: `fs-berkeleydb7.fsm`.

For more information please see Chapter "Oracle Berkeley DB 7" and *FirstSpirit Manual for Administrators*, Chapter "FirstSpirit ServerManager / Project properties/ Repository".

75.3   Faster migration from Oracle Berkeley DB 3 to 5 `5.2R16`

FirstSpirit is using Oracle Berkeley DB version 3 and 5 to hold its content data. Both versions can be used simultaneously on the same FirstSpirit server, in different projects. A migration from one version to the other can be triggered through a drop down list (option "Backend" in the FirstSpirit ServerManager under "Project properties – Repository").

Previously data conversion could, depending on the size of the project, potentially take several hours. In the current FirstSpirit version conversions from version 3 to version 5 can be performed faster. The new conversion method is activated via the checkbox "Use fast-path repository conversion if possible":
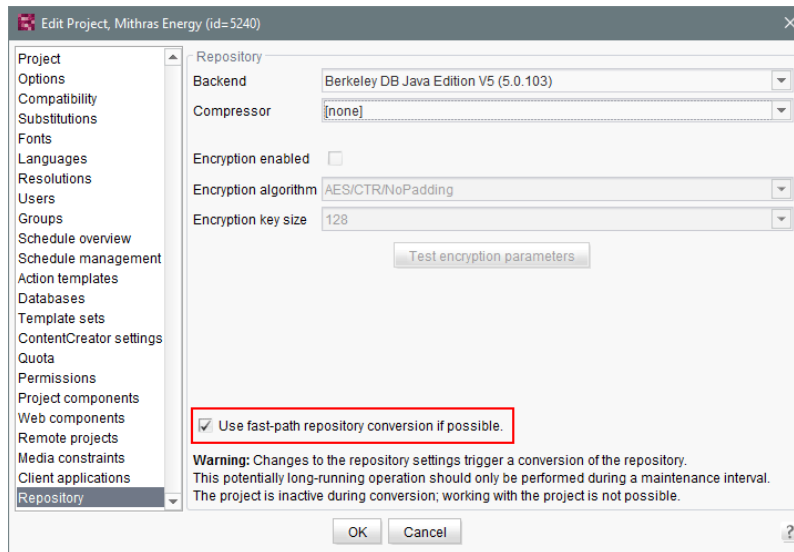
The checkbox is active by default. Faster conversions are only possible when the conversion path is Berkeley Version 3 to 5 and none of the other options in the panel (compression, encryption) are changed.

For further information see *FirstSpirit Manual for Administrators*, Chapter "FirstSpirit ServerManager / Project properties / Repository".

76   Security

76.1   Behavior of the HTTP header "X-Frame-Options" is now configurable for the FirstSpirit web applications fs5root and fs5webmon   5.2R12

Support for the HTTP header "X-Frame-Options": The behavior of the HTTP header "X-Frame-Options" is now configurable for the FirstSpirit web applications `fs5root` (start page and SiteArchitect) and `fs5webmon` (ServerMonitoring). It can be controlled via the parameter `frameOptionsHeader` in the configuration file `fs-server.conf`:

```
######################################################
# X-Frame-Options header to control frame embedding
# of FirstSpirit fs5root or fs5webmon webapplication
######################################################
# X-Frame-Options header value
# - DENY do not allow embedding in a frame
# - SAMEORIGIN only allow embedding in a frame from a page of the same origin
# - ALLOW_ALL do not limit embedding / do not set X-Frame-Options header
frameOptionsHeader=SAMEORIGIN
```

Possible values:

- `DENY` prohibits embedding of the web applications into a frame

- `SAMEORIGIN` prohibits embedding of the web applications into a frame which is not located on the same host (default value)

- `ALLOW_ALL` allows embedding of the web applications into a frame

> **!** The new parameter changes the previous default behavior. If embedding of the FirstSpirit web applications (or LiveEdit) into frames of another host should be allowed or if such embedding should generally be prohibited, the configuration parameter must now be set to the appropriate value.

76.2   Java Vulnerability (Serialization/Deserialization) `5.2R3`

Java applications which use or include the Java libraries

- "Common Collections" (Apache)

- "Groovy"

- "Spring Framework"

may pose a potential security risk: a vulnerability in these libraries enables an attacker to execute code on a server without prior authentication. Further libraries affected by this vulnerability are currently not known.

The FirstSpirit core software itself is not affected by this security threat as it does not use any of the aforementioned libraries.

However, several FirstSpirit Modules used or use at least one of the affected libraries and thus may have been or may be used as vectors for malicious attacks against FirstSpirit.

Furthermore, third-party FirstSpirit Modules may be affected.

FirstSpirit version 5.2R3 includes a bugfix which provides extensive protection against known and unknown attacks which exploit this vulnerability. This fix also protects potentially vulnerable modules (server-side only!). An update to this FirstSpirit version increases the general security of FirstSpirit, e.g. when FirstSpirit is deployed in an unprotected environment.

Several of the aforementioned modules have already received specific bugfixes to protect against this vulnerability.

For further information, see the related posting in the FirstSpirit-Community.

Please direct questions about this subject to e-Spirit Technical Support.

For further information about the vulnerability, see www.foxglovesecurity.com.

77   SiteArchitect

77.1   "de.espirit.firstspirit.agency.SnippetAgent#getTypeIcon" Uses Restyled icons   2018-09

In the course of FirstSpirit's design rebrush, the method `getTypeIcon` of the interface `SnippetAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Access API) now uses restyled, more modern type icons in FirstSpirit SiteArchitect. These icons are also used e.g. for the breadcrumb display of the input component FS_INDEX with "DatasetDataAccessPlugin":
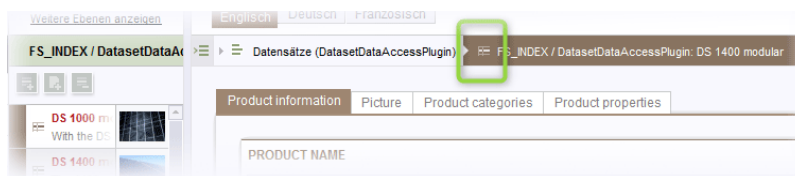
77.2 Creating a section reference via context menu or keyboard shortcut 5.2R8

A section reference can now also be created via the context menu entry "Paste as section reference" or via the keyboard shortcut Ctrl + Alt + V .

77.3 Workflows / Task list: Aborting workflows now requires project administrator privileges 5.2R10

The task list in FirstSpirit SiteArchitect manages all tasks created in FirstSpirit, also called "workflows":
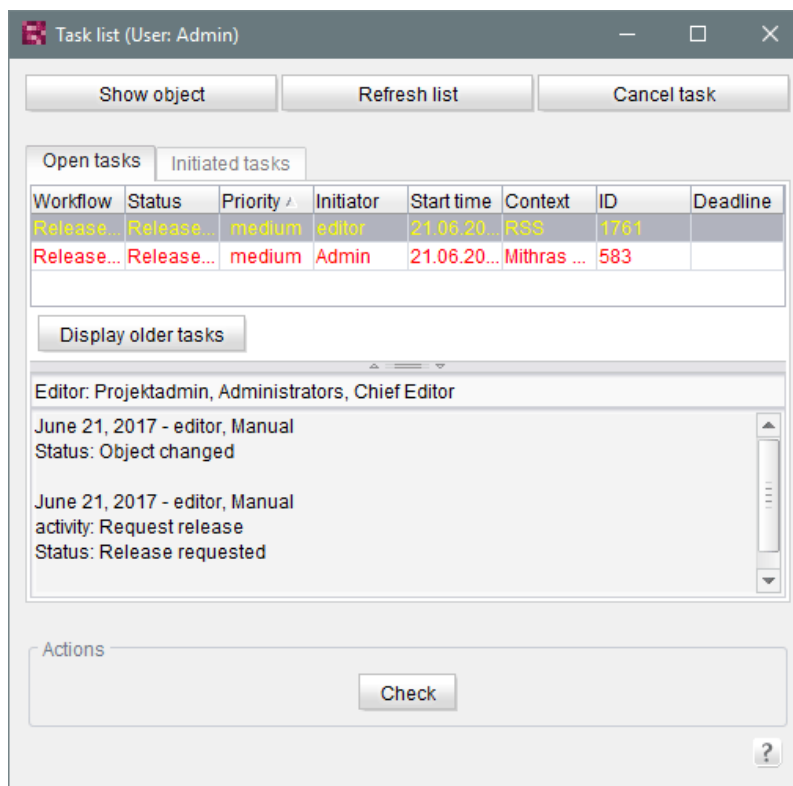
The button "Close task" may be used to close a task and thereby abort the associated workflow. This may become necessary if a task has become invalid (e.g. by deleting the object on which the workflow is active). Until now, this action was available to all users. As of the current FirstSpirit version, this action now requires at least project administrator privileges due to security considerations because aborting workflows, especially on referenced objects, can potentially lead to undefined states. If the current user does not have sufficient privileges to close a task, the button is inactive.

In this context, the button's label has been changed from "Close task" to "Cancel task".

For further information, see *Documentation for FirstSpirit SiteArchitect*, chapter "Task list".

77.4   Selection of revisions for merge   5.2R4

All project data in a FirstSpirit project possess a revision history that may be used to trace changes of data over time. Based upon this historical data, changes made to two revisions of the same object may be compared using a difference visualization. To do so, two of an object's revisions that should be compared are selected in the "Version history" dialog (Ctrl + H or context menu entry "Version history"), and a click on the "Compare" button will display a difference visualization of the two revisions, named "Version comparison". In this "Version comparison" dialog, data of the two compared revisions may be merged:
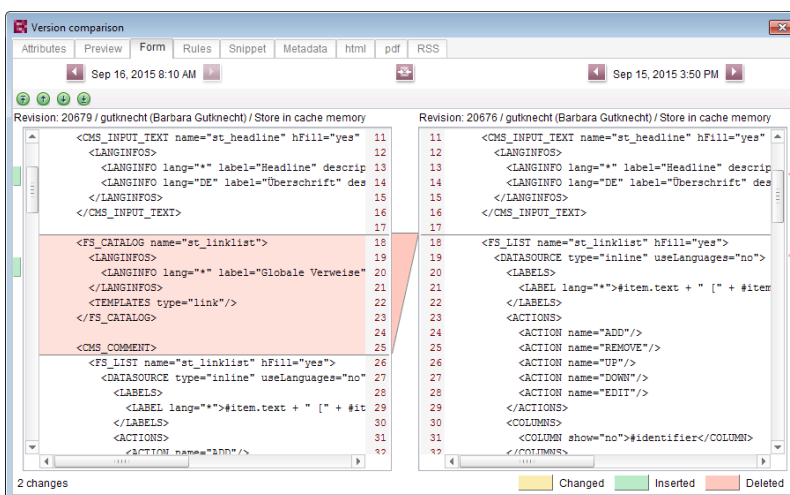
Functionality "Merge" in version comparison

Until now, the "Merge" functionality (in "Version comparison" dialogs, e.g. the button

for template elements) was available on almost all tabs (depending on the specific element type: "Attributes", "Child list", "Metadata", "Variables", "Form", "Rules", "Snippets", template sets). A merge could potentially be used to modify system information (tabs "Attributes", "Child list"). In order to prevent modification of such system information, FirstSpirit version 5.2R4 and later versions restrict availability of merge functionality as follows:

- **Tab "Child list":** merge functionality is **not available**

- **Tab "Attributes":** merge functionality is **only available to server and super administrators**

Thus, a user possessing the appropriate privileges will continue to be able to modify attributes of an element.

For further information, see *FirstSpirit Online Documentation*, page "Templates (basics) / Basics / Functions via context menus / Version history / Compare".

77.5 Changed label for the function "Preview" 2018-09

In all languages, the labels for the context menu and toolbar functions "Preview" and "Preview errors" have been changed to "Display preview" and "Display preview errors", respectively.

77.6 Browser integration: "Internet Explorer" 5.2R21

With the current version of FirstSpirit, the discontinued "Internet Explorer" variant for the "integrated preview" in FirstSpirit SiteArchitect is no longer supported. The current BETA version "Internet Explorer (BETA)" is being released to replace it. The corresponding menu entry has been changed to "Internet Explorer" and the "Internet Explorer (BETA)" menu item has been removed from SiteArchitect.

Up to and including FirstSpirit version 5.2R20:
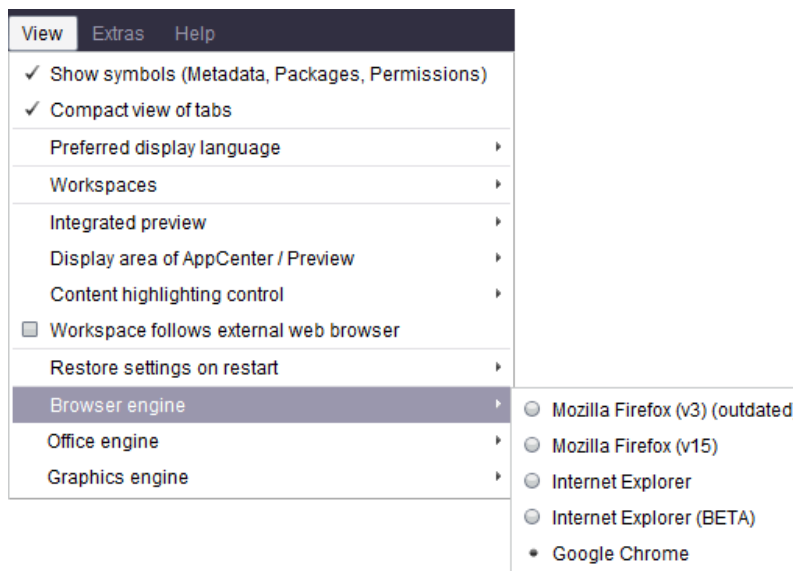
From FirstSpirit version 5.2R21:
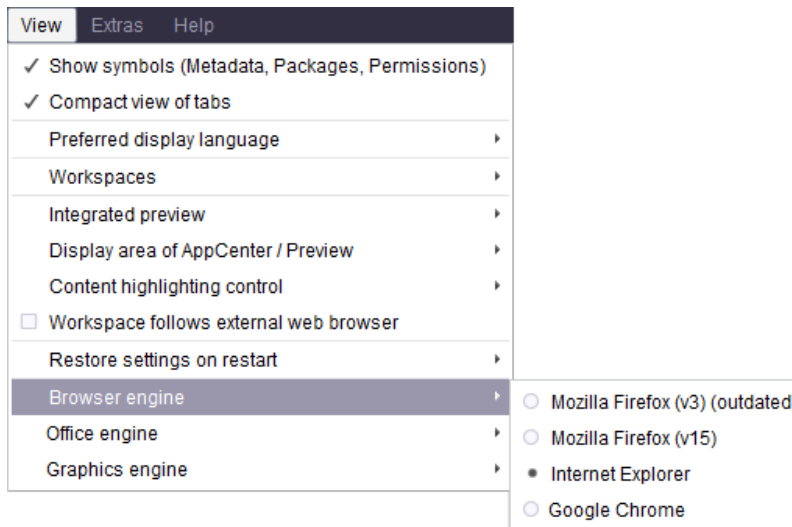
77.7 Display of titles in forms [2018-07]

The new FirstSpirit graphical user interface design has been used capital letters for titles in forms in SiteArchitect since FirstSpirit version 5.2R19 (March 2018, parameter `label`).
As of the current release, this display was improved.

77.8 Display of Default Values in Data Sources [5.2R5]

FirstSpirit's Data Sources store is used to store and manage well-structured content, e.g. press releases, product catalogs, and address lists. The data is displayed in a tabular view:

If a template for a dataset defines an input component with a default value and a dataset based on this template does not override this value (i.e. an editor has not entered a value into this input component for that dataset), the detailed dataset view will show a pink frame around this input component:

In the tabular view, such default values used by a dataset will now be shown in a semi-transparent fashion:
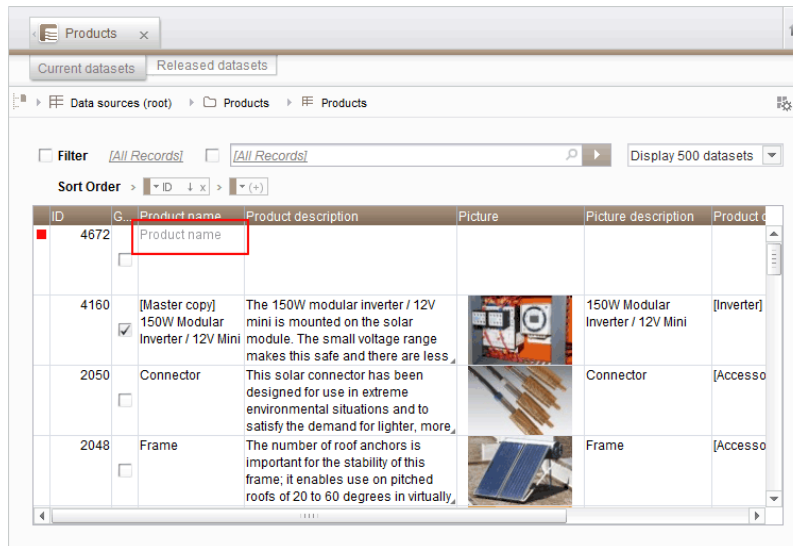
Previously, default values were not shown.

For further information, see

- *Documentation for FirstSpirit SiteArchitect*, chapters
  - "Data Store / Editing area of a data source (overview)"

  - "General operation / Default values"

- *FirstSpirit Online Documentation*, chapter
  - "Template development / Forms / Default values"

77.9 Drag-and-drop support for CMS_INPUT_DOMTABLE 5.2R5

A central interaction pattern in ContentCreator and SiteArchitect is the affordance for simple data exchange via drag-and-drop, e.g. from a report or a (Windows) desktop into a FirstSpirit input component.

As of FirstSpirit version 5.2R5, the input component CMS_INPUT_DOMTABLE in SiteArchitect now also supports drop functionality. Now, objects of type *Text*, e.g. text from a word processing program such as Microsoft Word, may be inserted into CMS_INPUT_DOMTABLE using drag-and-drop.

When using the module "FirstSpirit OfficeConnect", content from Microsoft Office documents may be inserted into an accordingly configured DOM input component using the keyboard shortcut Ctrl + V. Previously, this was only possible via the Import button.

For further information, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Drag-and-drop"

- Module documentation for *FirstSpirit OfficeConnect*

77.10 Configuring e-mail messaging in workflows 5.2R2

In FirstSpirit, lists of users and / or groups can be defined for activities and transitions in a workflow. Messages are then sent to these users and / or groups via e-mail when the corresponding workflow step is completed. The "List" field is used for this purpose:
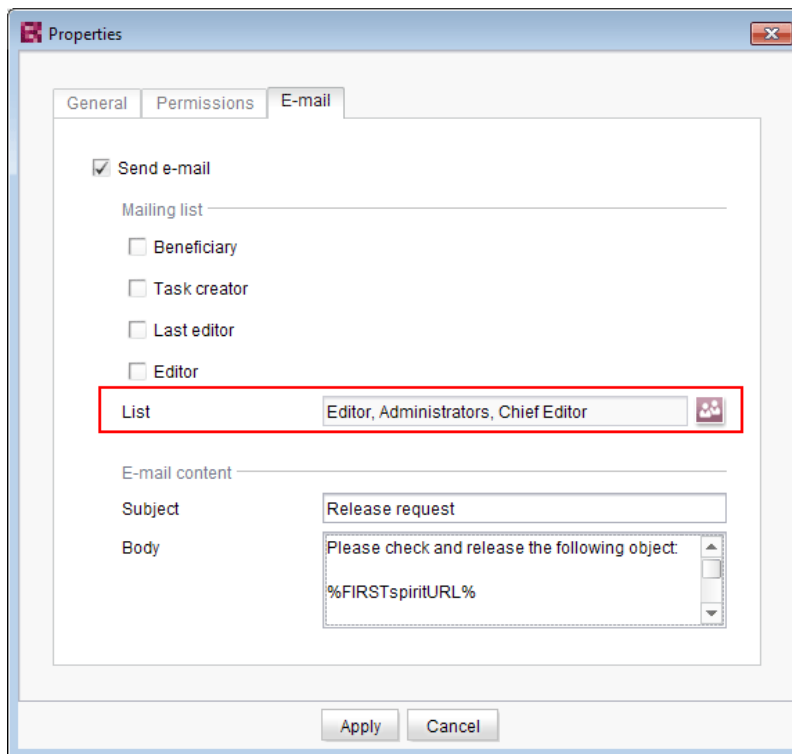
Changes to the design of FirstSpirit SiteArchitect resulted in these lists not being included in some versions of FirstSpirit version series 5.2 and 5.1. This error has been fixed in version FirstSpirit™ 2019-02: If at least one user or group is selected in this field, an e-mail is sent to the selected recipient(s).

> **!** Migration information: If this function was used to define a list in an earlier version of FirstSpirit version series 5.2 or 5.1 (5.2R1, 5.1R1, 5.1R2, 5.1R3, 5.1R4), this list must be redefined following an update to the latest version (FirstSpirit™ 2019-02) so that this error fix is applied and e-mails are sent to the users or groups in the defined list.

For more information about configuring workflows, see *FirstSpirit Online Documentation*, "Templates (Basics) / Composition of templates / Workflows".

77.11 Simplified Creation of Entries in FS_CATALOG 5.2R4

The input component FS_CATALOG allows creation of lists with sections or links such that editors may maintain several sections or links, respectively, within a single input component.

In SiteArchitect, if more than one section or link template were available, selection of a template for a new entry was done via a dialog. In FirstSpirit version 5.2R3, selection of a template for a new entry is now done via a pop-up menu (analogous to FS_LIST, `<PARAM name="select-ui">list</PARAM>`) from which the desired template may be selected:
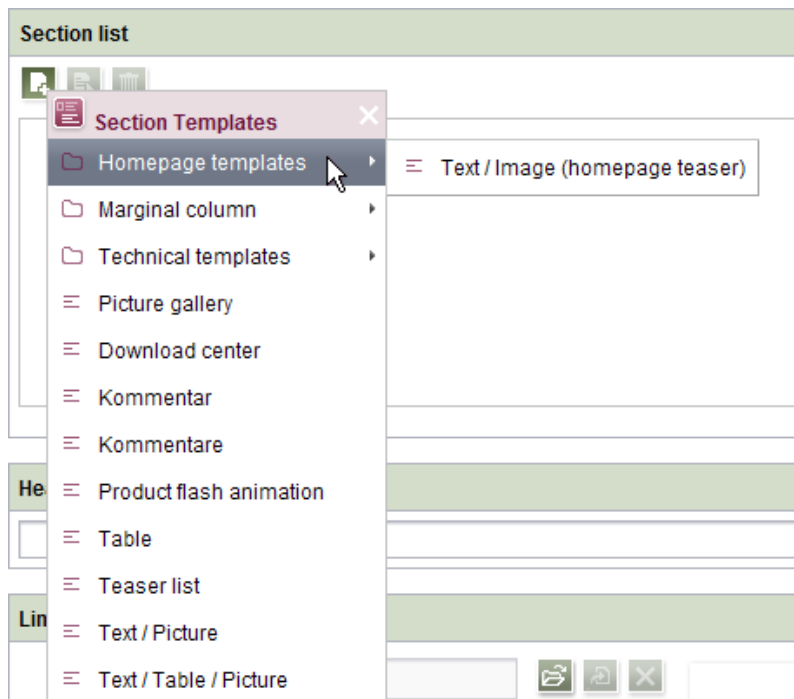
If the FS_CATALOG input component is not configured to limit the set of allowed templates (i.e. no `TEMPLATE` tags are defined within the `TEMPLATES` tag in the component's configuration) or if more than 21 allowed templates are defined, the template selection pop-up will also display a partial folder hierarchy of the Templates store, such that all folders between the Templates store root and individual, allowed templates are shown. The pop-up menu may be closed by either clicking on its title bar or the "Close" icon or by pressing `ESC`.

If the FS_CATALOG input component is configured to allow only one template (i.e. only one `TEMPLATE` tag is defined within the `TEMPLATES` tag in the component's configuration), the template selection pop-up will not appear, and the new entry will automatically be created using this template.

For further information about FS_CATALOG, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / CATALOG"

- *Documentation for FirstSpirit SiteArchitect*, chapter "Catalog (FS_CATALOG)"

77.12 Repeating a search after erroneous input `5.2R8`

If the search string used for a full-text search contains a special character that cannot be used in search, an error message will be displayed in the search results pane.
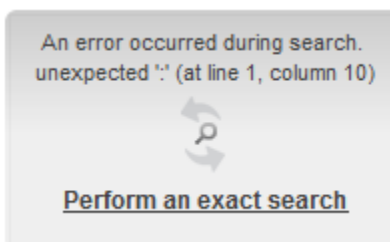
This error message now provides an opportunity to repeat the search by clicking **Perform an exact search**. In this repeat search, quotation marks will be placed around the search string, and an exact search will be performed.

77.13 Extended Filter and Sorting Functionality for Datasets 5.2R3

The Data Sources store is used to create and maintain strongly structured content, i.e. datasets. In the tabular overview of a data source, the existing datasets are displayed in two tabs that contain current and released datasets. This tabular overview supports filtering and sorting to customize the view.

In FirstSpirit version 5.2R3, **current datasets** can also be sorted by the time of modification such that the most recently edited datasets can be shown at the top of the list. This sorting can be enabled by using the new sort criterion "Modification Date":
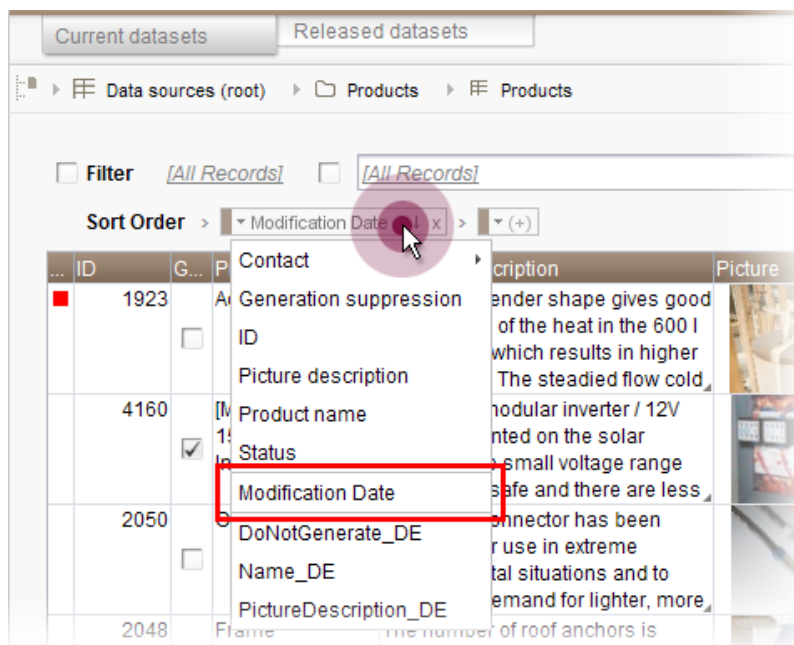
As before, the leftmost column in the tabular view may be used to sort datasets by workflow state. The tabular view may be configured to display only datasets which are not released by using the new filter "State: not released":
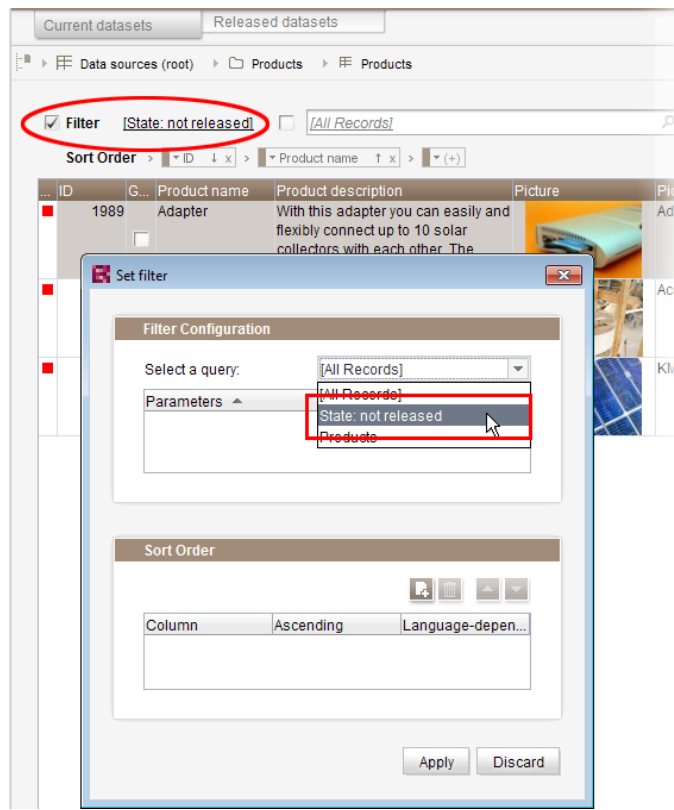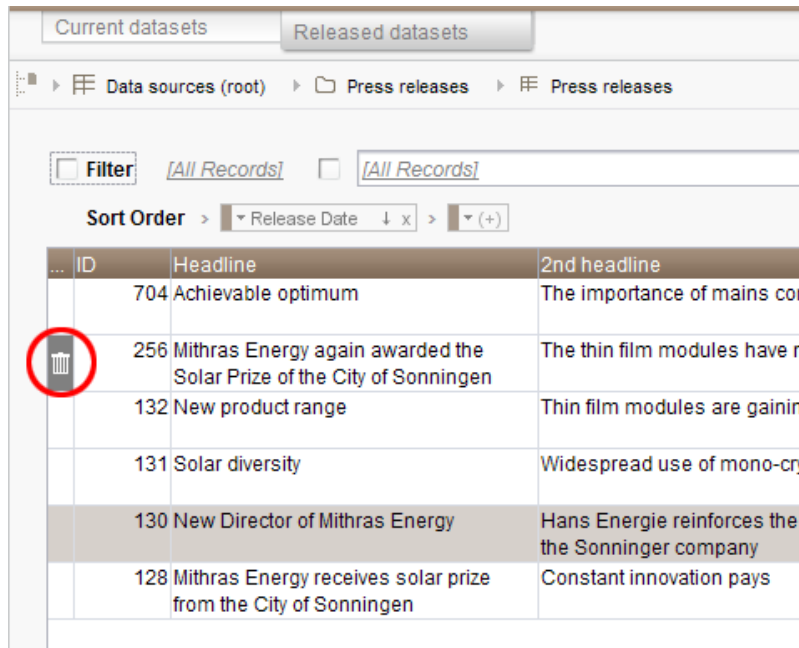
If a dataset should be **deleted** completely from a data source, it must be deleted in both the current and the released state. Datasets which have been deleted in the current state but are still present in the tab "Released datasets" (and potentially should be deleted there as well) are now marked with a paper bin icon:

This icon may be used to delete the associated dataset in its released state.

In order to more quickly identify datasets which have been deleted in current state but are still present in a released state, the "Released datasets" table may be configured to display only such datasets by using the new filter "State: deleted":
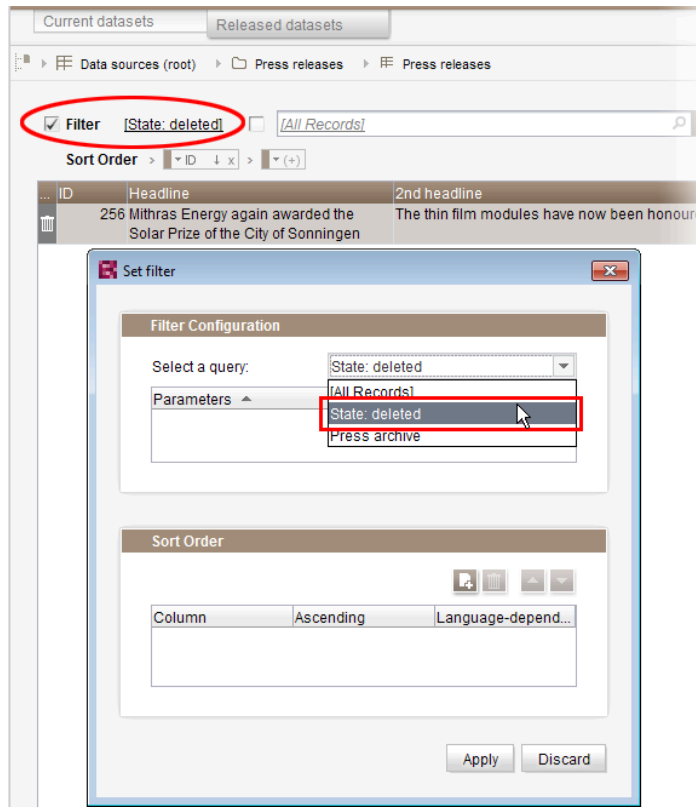
In order to sort released datasets by date of most recent release, use the newly-introduced sort criterion "Release Date":
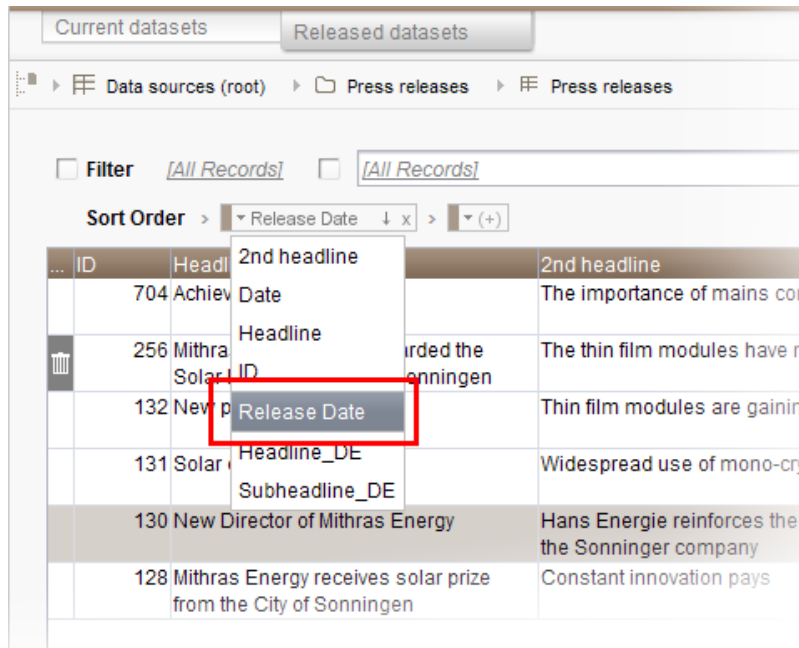
Sorting via the leftmost column in the "Released datasets" table is no longer possible.

Furthermore, datasets which are being deleted in the tab "Current datasets" may now be deleted from the "Released datasets" tab at the same time. This may be accomplished by checking the checkbox "Delete release version as well" in the confirmation dialog which is shown as a dataset is deleted:
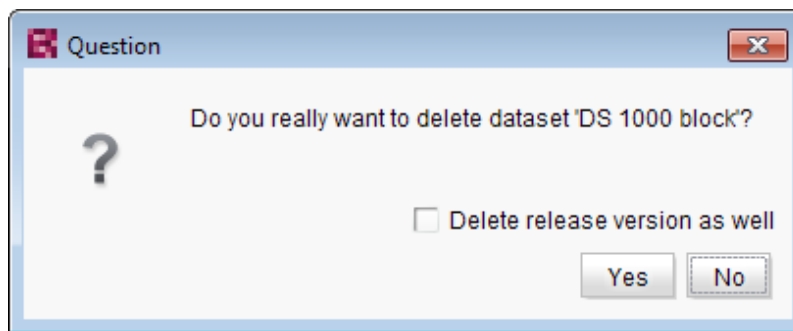
For further information, see

- *Documentation for FirstSpirit SiteArchitect*, chapter "Data Store"

- *FirstSpirit Online Documentation*, "Templates (basics) / Composition of templates / Database schemata"

77.14 FS_DATASET / FS_INDEX: Working with newly created datasets has been optimized 2018-07

Input components FS_DATASET and FS_INDEX (with `DatasetDataAccessPlugin`) can be used, for example, to create new datasets in a data source.

Even if editing datasets is completely deactivated for the corresponding input component (for FS_DATASET: `allowEdit="no"`, for FS_INDEX via the definition of a suitable rule), with the latest FirstSpirit release, new datasets created in this way can now be initially filled with content in FirstSpirit SiteArchitect.

Further editing of the dataset is possible in the Data Store.

Previously it was not possible to maintain newly created datasets if the editing of datasets had been deactivated for the input component.

For more information, see *FirstSpirit Online Documentation*,

- "Template development / Forms / Input components / DATASET"

- "Template development / Forms / Input components / INDEX"

77.15 FS_INDEX: Reuse of tabs in the details view 5.2R5

In FirstSpirit version 5.2R5, the user interface of the details view of the input component FS_INDEX has been optimized: the tabs in the details view will now be reused and visualize an active edit mode.

The details view is always started when a new entry is added to the index or an index entry is edited. Instead of the usual tree view in the left pane of the SiteArchitect window, an overview of the index' entries is displayed. In the editorial area, a new tab will be opened that shows the selected index entry. If another entry is selected in the index overview of the details view, this tab will be reused.

Edit mode is only automatically activated when adding a new index entry. If an existing entry should be modified, edit mode must be activated manually.

If edit mode is active, the same rules in tab handling apply as do to serial editing of datasets: when switching from one entry to another, changes to the first entry will be saved after a confirmation dialog is answered accordingly, the next entry will then be displayed in the same tab and will be in edit mode as well.
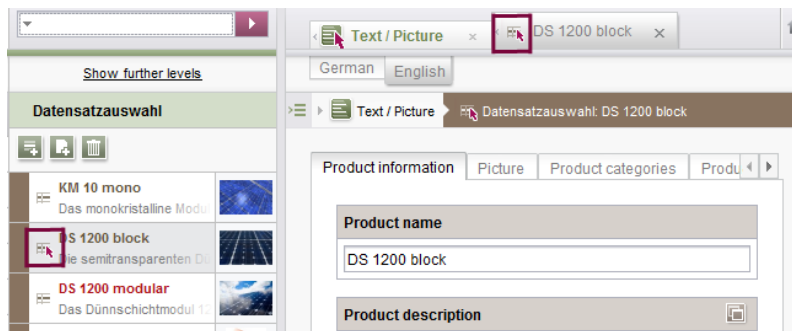
Active edit mode will be visualized using a red arrow icon on the tab of the entry that is being edited.

77.16 'Group exclusion' function for transitions in workflows 5.2R3
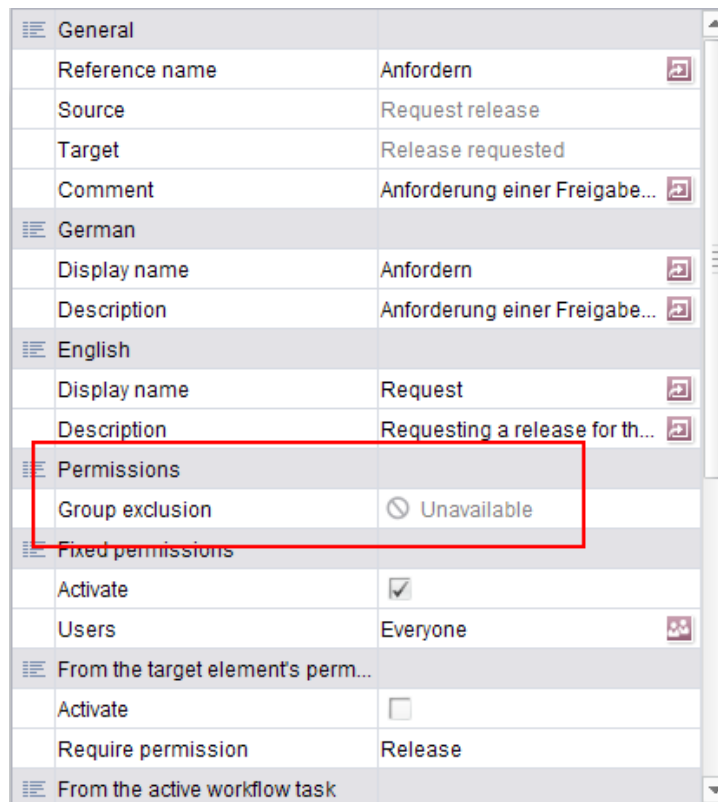
A workflow is a sequence of tasks that is completed according to a fixed, predefined structure. In FirstSpirit, this consists of statuses, activities, and transitions, whereby transitions form the link between activities and statuses. Due date deadlines and groups of authorized individuals can be defined in FirstSpirit for the respective tasks. Authorizations are defined for transitions.

The "Group exclusion" field for a transition ("Permissions" tab) is used to select groups which are not to be preselected as "Next editor" in the workflow dialog:
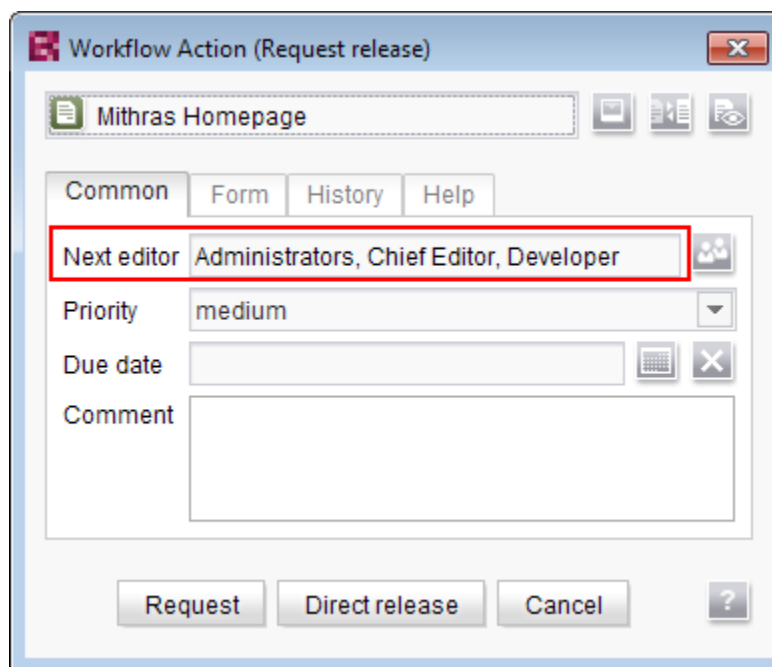
If the user does not explicitly select these groups in the workflow dialog, they will not receive an e-mail message either.

It is only possible to define such a group exclusion for transitions which indicate an activity. From FirstSpirit version 5.2R3 onward, this definition is now also prevented in the GUI for transitions which indicate a status:

In the properties table

and

In the dialog

The group(s) that is/are not to appear automatically as "Next editor" in the workflow dialog must be specified for the transition which indicates the previous activity in the workflow:
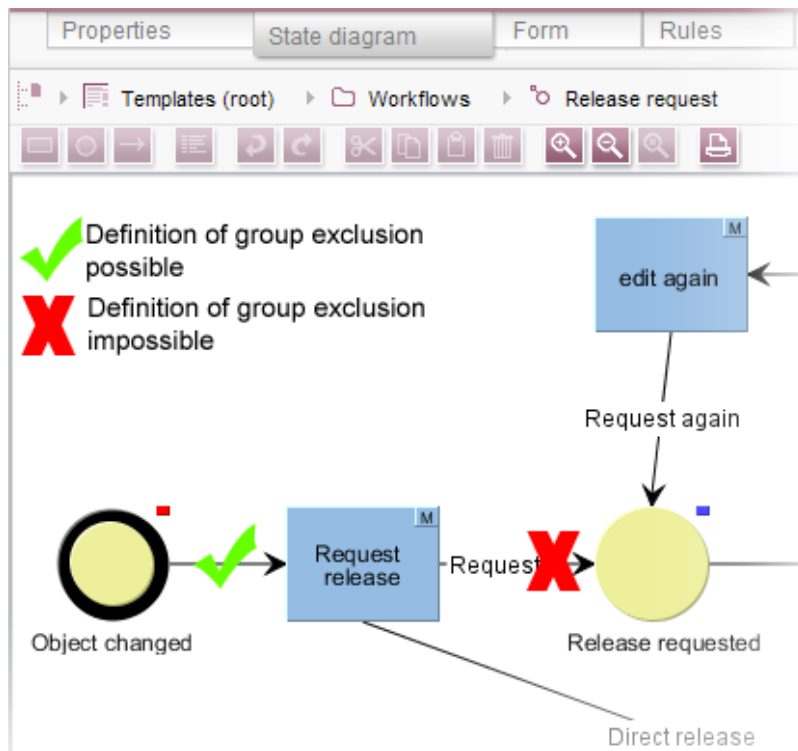
For more information, see also *FirstSpirit Online Documentation*, "Templates (basics) / Composition of templates / Workflows / State diagram tab / Properties of a transition".

77.17 Integrated preview: Updated third-party software 5.2R7

The integrated preview in FirstSpirit SiteArchitect (menu entries "View / Integrated preview" and "View / Browser engine") is based upon third-party software:

The browser engine "JxBrowser", used to integrate "Google Chrome", has been updated from version 4.9.5 to version 6.12.

In order to integrate "Internet Explorer", another browser engine has been implemented ("JExplorer", version 3.4) which is intended to ensure better stability when using Internet Explorer for integrated preview. However, use of this browser engine is not yet officially released and is currently in a BETA phase.

In SiteArchitect, this browser engine may be selected via the menu entry "View / Browser engine / Internet Explorer (BETA)":
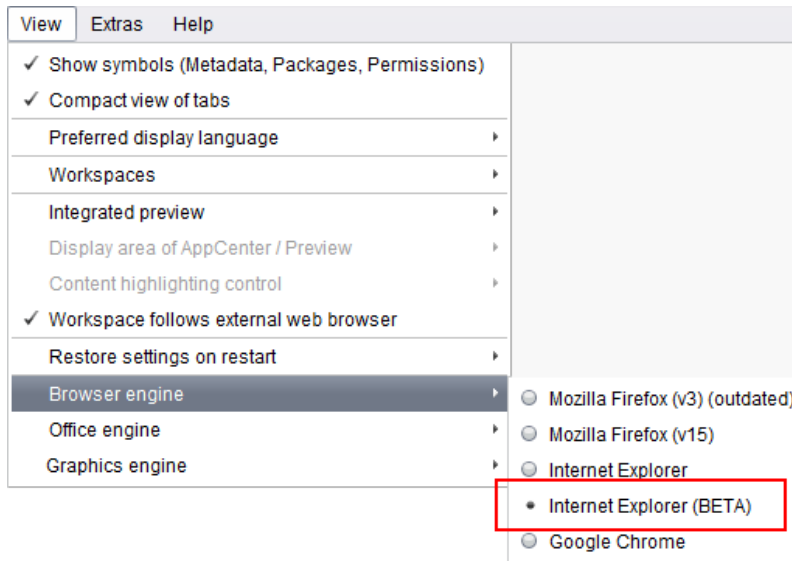
In project properties ("FirstSpirit ServerManager / Project properties / Client applications", tab "Browser engine"), project developers may define if this browser engine should be preselected or fixed for users of this project, e.g.
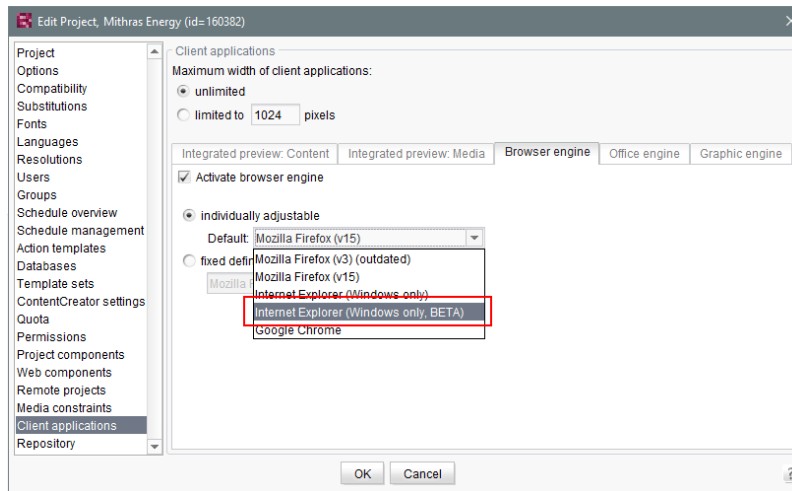
For further information, see

▪ *FirstSpirit SiteArchitect / The menu bar / View* ($\rightarrow$*Documentation FirstSpirit SiteArchitect*)

▪ *FirstSpirit Manual for Administrators*, chapter "Browser engine"

77.18 JSON: Improved validation 2019-02

The new JSON validator no longer aborts at the first error, but outputs the complete generated JSON document. Errors are clearly marked at the corresponding positions in the output, e.g.

```
"hidden":false,"newRow":true,"text":"<h3"> <----- INVALID JSON: expected ',' or '}'
    - got '>'
```

For more information please see *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Support for JSON".

77.19 Context menu functionality and horizontal toolbar 5.2R5

In FirstSpirit SiteArchitect, the context menus for store tree items have been modified such that context menu entries are now always shown in a consistent order. Furthermore, the drop-down menus associated with the "Preview" and "New" buttons in the horizontal toolbar have been expanded:

The icon for showing the buttons of the horizontal toolbar which are faded out because of lack of column width can be found now at the right-hand edge of each column:

For further information, see *Documentation for FirstSpirit SiteArchitect*,
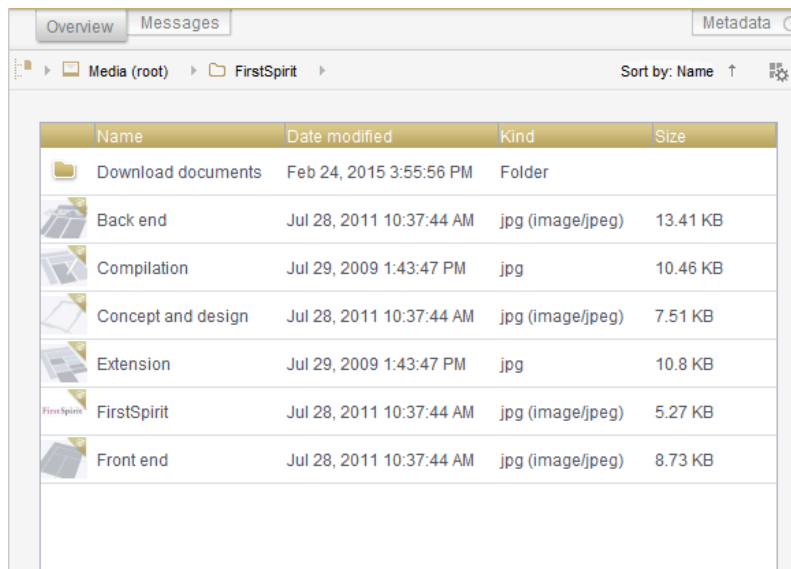
- "FirstSpirit SiteArchitect / The horizontal toolbar"

- "FirstSpirit SiteArchitect / The horizontal toolbar / Preview"

- "FirstSpirit SiteArchitect / The horizontal toolbar / New"

77.20 List view at folder level in the Media Store   5.2R13

As of the current FirstSpirit version, you can now select a list view in addition to the previously available Thumbnail view for the "Overview" tab at folder level in the Media Store. Use the **Customize layout** icon in the top right-hand corner to switch between the two views. The selected view applies to all folders in the Media Store and is also used for the respective user in other projects on the server.

List view

The list view contains columns for the preview icon, display name, change date, file type, and file size.

The width of the individual columns can be adjusted by dragging the column border with the mouse.

Click on a column heading to display the media sorted according to the values in the relevant column.

77.21 Logging the Integrated Preview (Browser Engines)   5.2R10

Logging supports FirstSpirit developers and administrators when it comes to identifying and rectifying errors. Logging takes place at different points in FirstSpirit, e.g., log messages relating to actions on the server are retained in the `fs-server.log` file, log messages relating to schedules in the `fs-schedule.*.log` file, etc.

With the current FirstSpirit version, log messages for the browser engine used for the integrated preview are now also retained, namely in the SiteArchitect log files `.firstspirit*/logs/ SiteArchitect*.log`. This can be opened via the "Show log file in File Manager" entry in the "Help" menu in the local file directory or displayed in a separate window via the "View log" menu item.

Logging depends on the log level set in the relevant client. This can be adjusted via the `-DlogLevel` (e.g., `-DlogLevel=DEBUG`) parameter in the connection settings ("Start page / Connection settings / Optional parameters") or the "Extended logging" entry in the "Extras" menu. The default log level is `INFO`.

77.22 New functionality for FS_CATALOG and FS_INDEX `2018-10`

As of the current FirstSpirit release, the input components FS_CATALOG and FS_INDEX have been extended with new functionality in FirstSpirit SiteArchitect which enables more comfortable work with these components:

FS_INDEX
The order of entries in an FS_INDEX component could previously only be modified via drag-and-drop. Now, the order can also be changed via newly-implemented buttons:

FS_CATALOG
The order of entries in an FS_CATALOG component could previously only be modified via drag-and-drop. Now, the order can also be changed via newly-implemented buttons:

Furthermore, existing entries can also be copied or duplicated via their respective context menu entries or keyboard shortcuts.
This function can be deactivated via an according rule (analogous to the creation of new entries), e.g.

```
<RULES>
  <RULE when="ONLOCK">
    <WITH>
      <FALSE/>
    </WITH>
    <DO>
      <PROPERTY name="NEW" source="fs_catalog"/>
    </DO>
  </RULE>
</RULES>
```

The function "Cut" can now also be executed via the new context menu or keyboard shortcut.

For further information, see

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / CATALOG" and "Template development / Forms / Input components / INDEX"

- *Documentation for FirstSpirit SiteArchitect*, "Input forms / Catalog" and "Input forms / Index"

77.23 Optimized keyboard control for consideration of pages and sections in generation 5.2R4

In the Page Content store, pages and sections can be configured with the following options:

- (Pages) "Page is completely translated to this language": Depending on project settings, the page's specific project language version for which this option is set will be generated or not.

- (Sections) "include this section in the output": During generation, the section's specific project language version for which this option is set will be rendered on the page or not.

These settings can be changed for a specific project language by toggling the checkbox on that language's tab in the workspace area of an element that is in edit mode.

The confirmation dialog which appears after toggling such a checkbox (e.g. "This section will no longer be available for generation in the output. Do you wish to continue?") used to use "No" as its default answer. In order to support a more efficient editorial process, starting with FirstSpirit version 5.2R4, this dialog's default answer will be "Yes".
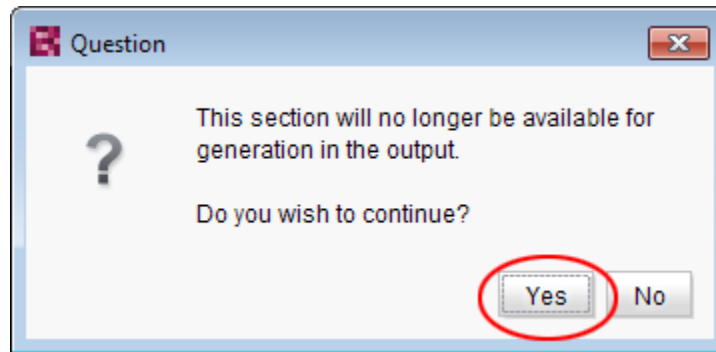
With this change, the confirmation dialog can generally be confirmed by pressing either `Enter` or `Space` on the keyboard.

For further information about these functionalities, see *Documentation for FirstSpirit SiteArchitect*,

- chapter "Settings at page level"

- chapter "Settings at section level"

77.24 Optimizing code completion in templates `5.2R2`

Code completion allows FirstSpirit templates to be programmed more quickly, while the lists of suggestions offer a simple source of reference. This can be found in FirstSpirit templates on the

- Form

- Rules and

- Output

tabs.

The code completion function has been expanded in FirstSpirit version 5.2R2. Now, for example, the output tabs even show identifiers for the input components defined on the form tab, as well as methods which can be applied to the values returned by the input components. These can be inserted at the insert mark. The lists of suggestions can also be filtered by simply entering the necessary search text.

For more information, see the *FirstSpirit Online Documentation*, "Interesting tips / Input assistance".

77.25 Optimization of selection dialog 5.2R5

In SiteArchitect, the selection dialog offers navigation and search functionality which enable quick location of objects which should be referenced, e.g. images or files from the Media store or page references from the Site Structure store (e.g. input components FS_REFERENCE, FS_LIST, FS_DATASET). The dialog only displays objects which may be selected, based on the constraints set by the input component.
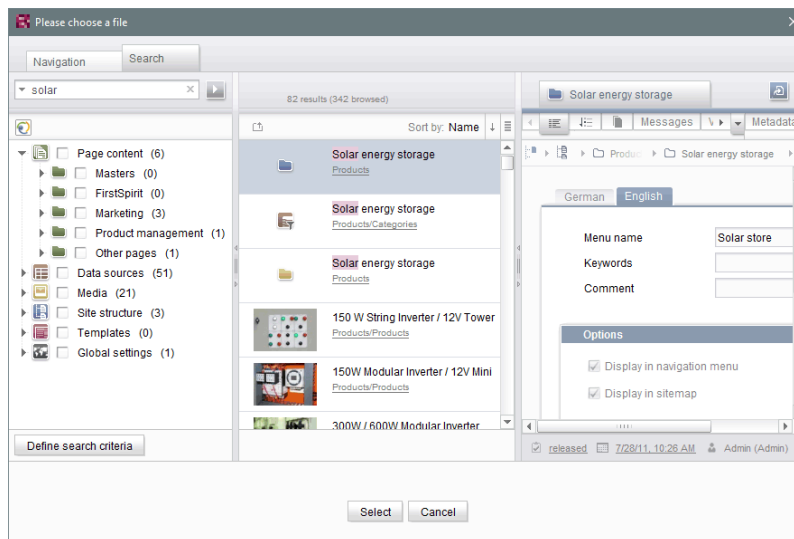
Selection dialog of FS_REFERENCE (SiteArchitect)

In FirstSpirit version 5.2R5, the search interaction pattern in this dialog has been optimized:

- By default, the selection dialog will now search **all stores / folders of all projects** which are allowed, based on the constraints set by the input component (e.g. FS_REFERENCE: tag SOURCES / FOLDER, FS_DATASET: tag SOURCES / CONTENT). Previously, search only considered projects / stores / partial trees which were selected by the user in the tree of the tab "Navigation". In order to limit search to certain projects / stores / partial trees, users may now toggle checkboxes in the tab "Search" accordingly.

- If search is started from the tab "Navigation", any existing search limitations set in the tab "Search" will be **reset**. In the tab "Search", checkboxes will thus no longer be set automatically.

- The display of the **suggestion list** below the search field has been improved.

For further information

- about the selection dialog, see *Documentation for FirstSpirit SiteArchitect*, chapter "Selection dialogs",

- about specific input components, see *FirstSpirit Online Documentation*.

77.26 Code completion optimizations 5.2R7

Code completion is available on the "Form" and "Rules" tabs, as well as on the template set tabs. The `Ctrl` + `Space` key combination opens a window of the available tags, parameters, and, if applicable, values.

- On the "Form" tab, code completion can be used to insert input components together with their minimum configuration and all available parameters and associated values.

- On the "Rules" tab, all available tags and parameters can be shown and inserted, according to their hierarchy.

- On the template set tabs, all available instructions in their corresponding syntax, identifiers of input components defined on the "Form" tab, and methods can be inserted.

Some optimizations have been made to the "Form" and "Rules" tabs for the purpose of code completion in the latest FirstSpirit version:

Whereas in the past, the suggestions shown for tag and parameter names were **case-sensitive**, now case is irrelevant for code completion. For example, if the text `<fs` has already been entered on the "Form" tab, pressing `Ctrl` + `Space` will show the following suggestions:
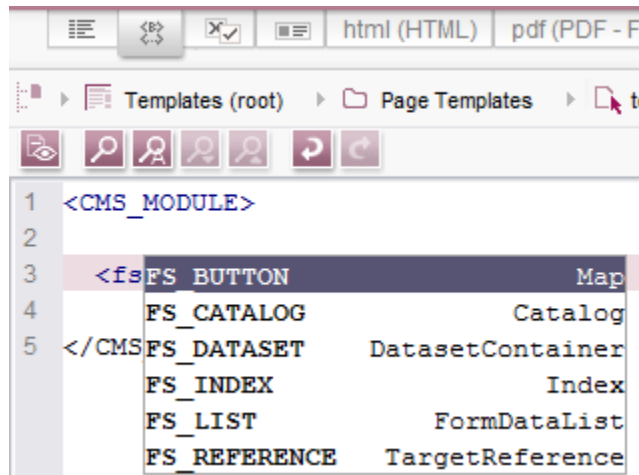
`<FS` must have been entered previously.

Instead of tags which code completion would close with `/>`, now open tags are generated, which make it easy to generate and work with internal tags.

Example **before 5.2R7**:

```
<FS_INDEX ...>
...
    <SOURCE name="" />
</FS_INDEX>
```

Example **with 5.2R7 or higher**:

```
<FS_INDEX ...>
...
    <SOURCE name="">
    </SOURCE>
</FS_INDEX>
```

Once saved, `<SOURCE name="...">` ... `</SOURCE>` is truncated to `<SOURCE name="..." />` again.

Furthermore, code completion can now be used to finish the **closing tags** of an element too, if completion is required for such a tag (i.e., one that starts with `</`). The next superordinate opening tag is always closed during this process.

For more information, see *Advanced topics / Input assistance* (→*FirstSpirit Online Documentation*).

77.27 Jumping to References in Template Code `5.2R9`

In addition to functions for software-supported completion of template code, the current version of FirstSpirit also provides means for switching to elements referenced in the code (other templates, FirstSpirit objects) and form definitions ("GOM") conveniently with a single click.

When the mouse cursor is hovered over the respective code expression, `Ctrl` displays information (name, object type, preview, path) regarding the referenced element in a tooltip.
Using `Ctrl` + `KLICK` allows for jumping to the referenced element directly.

This new functionality is available for the following template tabs:
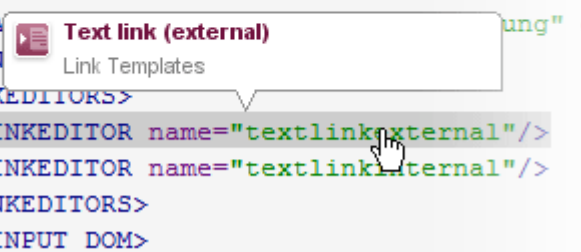
- **Tab "Form"**
  Reference to referenced templates and other FirstSpirit objects
  Example: **CMS_INPUT_DOM** – Limit to link templates using the tag *LINKEDITORS*


```
<CMS_INPUT_DOM name="pt_intro" hFill="yes"
  <FORMATS>
    <TEMPLATE name="p"/>
  </FORMATS>
  <LANGINFOS>
    <LANGINFO lang="*" label="Introduction"
    <LA      Text link (external)           ung"
  </LAN     Link Templates
  <LINKEDITORS>
    <LINKEDITOR name="textlinkexternal"/>
    <LINKEDITOR name="textlinkinternal"/>
  </LINKEDITORS>
</CMS_INPUT_DOM>
```

  Example: **FS_DATASET** – Limit to a data source using the tag *SOURCES*

```
<FS_DATASET name="st_contact" allowDelete="
  <LANGINFOS>
    <LANGINFO lang="*" label="Contact" desc
                                   ntakt" des
    Contacts
    Contacts
    <SOURCES>
      <CONTENT name="contacts"/>
    </SOURCES>
</FS_DATASET>
```

▪ **Tab "Rules"**

Reference to form definitions in the tab "Form" of the template, attribute "source":

```
<RULES>
  <RULE>
    <WITH>
      <NOT>
        <LESS_THAN>
          <PROPERTY name="VALUE" source="st_rows"/>
          <NUMBER>1</NUMBER>
        </LESS_THAN>
      </NOT>
    </WITH>
    <DO>
                    Press releases teaser
                    st_rows (CMS_INPUT_NUMBER)
      <VALIDATION scope="SAVE">
        <PROPERTY name="VALID" source="st_rows"/>
        <MESSAGE lang="*" text="The value ay not be les
        <MESSAGE lang="DE" text="Der Wert darf nicht unt
      </VALIDATION>
    </DO>
  </RULE>
</RULES>
```

▪ **Output Channels Tab**

Reference to form definitions in the tab "Form" of the template:

```
--$</h3>
<div class="clearfix te       Tag-Cloud
                              st_linklist (FS_LIST)
  --$$CMS_IF(!isWebEdit)$$--
    --$$CMS_VALUE(editorId(editorName:"st_linklist"))$$--
  --$$CMS_END_IF$$--
--$>
```

and referenced FirstSpirit objects

Example: referenced medium

```
$-- Footer --$
<div class="footer">
    <ul>
        <li>$--
            --$<a href="#top"$CMS_VALUE(editorId(element:#glo
                --$<img src="$CMS_REF(media:"icon_top")$" alt
                --$$CMS_VALUE(#global.gca("totop"))$$--
            --$</a>$--
        --$</li>
        <li>$--
            --$<a href="#top" onclick="self.print();return fa
                --$<img src="$CMS_REF(media:"icon_print")$" a
                --$$CMS_VALUE(#global.gca("print"))$$--
```

Example: referenced GCA object

```
$-- logo --$
$CMS_IF(!ps_homepage_header_text_content.isEmpty)$$--

    --$<a href="$CMS_IF(!ps_homelink.isEmpty)$$--
        --$$CMS_REF(ps_homelink)$$--
    --$$CMS_ELSE$$--
        --$#$--
    --$$CMS_END_IF$" title="$CMS_VALUE(#global.gca("homepage"))$">$--
        --$<span class="logoContent">$--
            --$<img src="$CMS_REF(ps_homepage_header_text_content)$" al
            --$<span class="ubar">$--
```

Example: referenced template

```
<img class="h1 ieFilter" src="$CMS_REF(mec
<span class="headlines">$CMS_VALUE(pt_head
$CMS_I
$C
$CMS_END_IF$
$CMS_RENDER(template:"tooltip",
            infoLayer:pt_infoLayer,
            infoLink:pt_infoLink,
            infoPicture:pt_infoPicture,
            infoHeadline:pt_infoHeadline)$
```

77.28 Search syntax: Masking special characters by using backslashes (\)

2019-02

In SiteArchitect, it is now possible to use special characters in search words of full-text search which are of special meaning in FSQL.

Through the use of a backslash (\), a special character can be used as a normal search character. For example, this allows exclusion of a period from interpretation as a name space delimiter.

A search for a search word without quotation marks thus corresponds to a search with quotation marks, it will however be interpreted as a partial word search.

Example:

2 possible search results:

- abc.def.ghi

- abc.def.xyz

The number of returned search results depends upon the search query used:

Search query	Number of results	Search procedure
abc	2 hits	Finds everything which contains abc
"abc.def"	0 hits	Searches for the **exact** sequence abc.def
abc\.def	2 hits	The period is used as a normal search character - finds everything which contains abc.def

77.29 Optimized keyboard control of CMS_INPUT_LIST 5.2R4

Using the multiple selection component CMS_INPUT_LIST, a user can select from a set of values specified by project developers.

Until now, selected entries could only be removed from the list via the context menu:
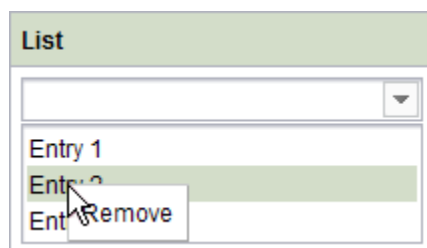
As of FirstSpirit 5.2R4, entries can now be removed using the keyboard shortcut Del .

For further information about CMS_INPUT_LIST, see

- *Documentation for FirstSpirit SiteArchitect*, chapter "Multiple selection list (CMS_INPUT_LIST)"

- *FirstSpirit Online Documentation*, "Template development / Forms / Input components / LIST"

77.30 Revised selection dialog and opening new workspaces 5.2R4

The selection dialogs in SiteArchitect (for example input components FS_REFERENCE, FS_DATASET) offer navigation and search options for quickly locating the objects that are to be referenced, e.g., images and files from the media store or page references from the site store.
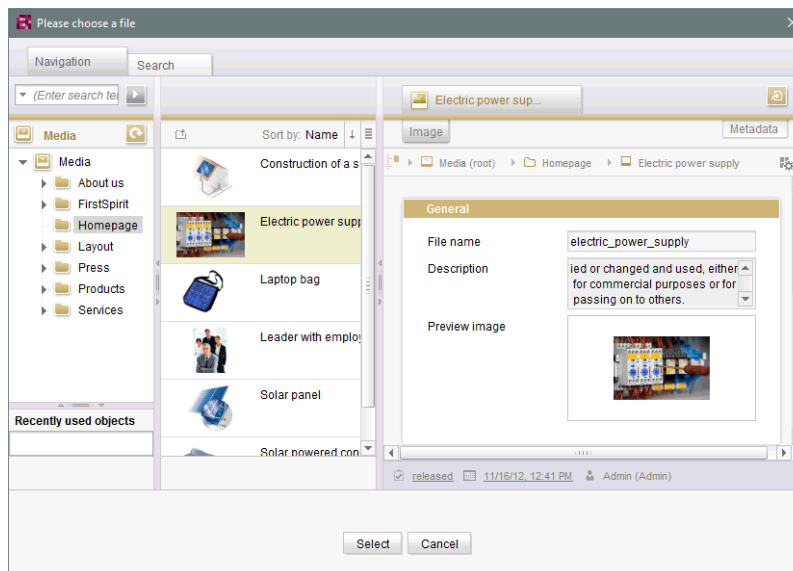
With FirstSpirit version 5.2R4, the selected object can now be opened in a new workspace via the

icon. The notification "The element 'xyz' has been opened in a new workspace." is displayed. Moreover, new workspaces are now opened on the right of the current workspace for better orientation, especially when working with a large number of workspaces (for example icons

and functions "Display in new workspace", "Extras / View Template", "View current / View release"). Previously, new workspaces were always opened on the far right (in last position).

For more information please refer to *Documentation for FirstSpirit SiteArchitect*, Chapter "Selection dialogs".

77.31 Revised version comparison 5.2R2

All project data in a FirstSpirit project has a version history, which documents how the data has been changed over time. Changes can generally be displayed by visualizing the differences between the revisions. To do this, two revisions can be selected for comparison with each other within the version history (Ctrl + H or "Version history" context menu function).

The corresponding dialog has been updated in FirstSpirit version 5.2R2 (with the exception of: Version comparison to (global) pages, (global) sections, datasets):
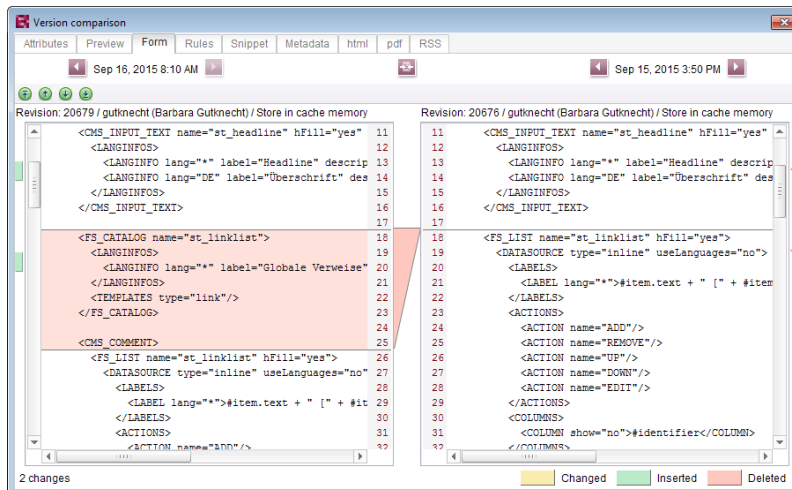
Version comparison of templates

The dialog now also allows you to "merge" the selected versions, e.g.,
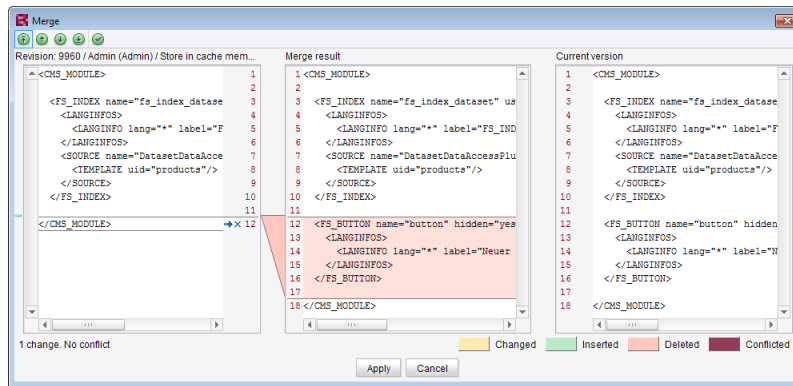
Merging changes from several revisions

For more information, see *FirstSpirit Online Documentation*,

- "Templates (Basics) / Basics / Functions via context menus / Version history / Compare"

- "Templates (Basics) / Basics / Functions via context menus / Version history / Merge"

77.32 Translation help: improved interaction when adopting contents

2018-09

The translation help dialog (menu "Extras / Translation help") can be used to copy existing contents of one page to another language and to use that as a basis for translation. The button "Adopt contents" can be used to copy contents from an input component in the source language to the same input component in the target language.

Button: "Adopt contents" (translation help)

Previous behavior

The button "Adopt contents" was shown for both language-dependent and language-neutral (language-*in*dependent) input components while edit mode was active. However, adoption of contents from a source language to a target language was only possible for language-dependent input components. (Language-neutral components only have one content value each which is the same for every language.)

New behavior

The button "Adopt contents" will only be shown for language-dependent input components while edit mode is active.

For input components with nested content (e.g. FS_LIST or FS_CATALOG), behavior will differ depending on the language-dependency constellation:

- **Case 1:** The outer input component is language-independent (button "Adopt contents" will not be shown), while the inner input components are language-dependent (button "Adopt contents" will be shown). The contents of the inner input components can be adopted to the target language.

- **Case 2:** The outer input component is language-dependent (button "Adopt contents" will be shown). The contents of the outer input component can be adopted to the target language. As part of this process, language-neutral contents of inner input components will be adopted as well. (Adoption of language-dependent contents of inner input components is not supported.)

78   SiteArchitect / ContentCreator

78.1   Dynamic forms: New property "CONTAINERTYPE"   5.2R6

Input components may be used in multiple contexts: in sections, list components such as FS_CATALOG, datasets, and pages. As of the current FirstSpirit version, the property CONTAINERTYPE allows identification of the object type. Depending on the surrounding object type, the input component may, for example, be shown or hidden (or set to be read-only).

Towards this end, the expression <PROPERTY source='#global' name='CONTAINERTYPE'/> may be used in the value determination block of a rule's definition (or for the definition of a precondition). It returns the identifier of the container type, where the return value matches the type's name (in uppercase letters). The following types are currently supported:

- FS_CATALOG

- FS_LIST

- CMS_INPUT_DOM

- CMS_INPUT_DOMTABLE

- CMS_INPUT_LINK

- CMS_INPUT_IMAGEMAP

- BODY

- NONE

For further information, see *Template development / Rules / Form properties <PROPERTY/> / Property CONTAINERTYPE* (→*FirstSpirit Online Documentation*).

78.2   Optimized Search   5.2R18

During indexing for search, FirstSpirit historically did not add English-language "stop words" (short words which appear often in a language but seldomly indicate relevant information about the contents of a document) to the index, e.g.

- "a"

- "and"

- "are"

- "is"

- "the"

- "was"

- "with"

- ...

For example, in the demo project "Mithras Energy", a search for "the future" previously resulted in an empty search results list because the word "the" of that phrase was not in the search index. As of the current version of FirstSpirit, such stop words will no longer be handled specially but added to the search

index as well; in the demo project "Mithras Energy", a search for "the future" will now return the English-language start page of that project (text: "Solar energy is the energy of the future, ...") as a search result.

Due to this change, the size of the search index of a project will increase slightly, and more search results will be shown accordingly.

This change will not have automatic effects on search results; the different indexing behavior will only be shown after modifying respective content, which causes the associated element to be reindexed individually. Thus, the words or character sequences listed above can be found during a search in existing FirstSpirit projects only once a given FirstSpirit element (page, section, dataset, etc.) was changed and saved. Alternatively, it is possible to reindex the entire project or parts of a project via a schedule task or the API. Such a reindexing process creates higher CPU and memory loads, however, and should only be carried out during a maintenance period.

78.3 Reports: Handling has been improved `5.2R6`

In FirstSpirit, reports are an important and project-specifically customizable means of making content from any source available to editors in a project. Reports allow a structured display of data that can - depending upon a report's implementation - be searched, filtered, and used for editorial work (by way of drag-and-drop and buttons).

Actions that can be started using a button on reports in FirstSpirit SiteArchitect (e.g. starting a search) can now be easily triggered by pressing `Enter` (1):
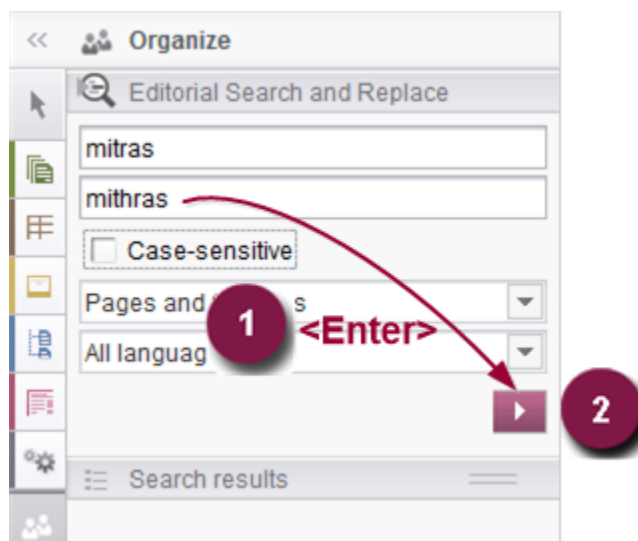
Furthermore, an arrow is used now for the button instead of the display name of the respective report (2).

For further information, see e.g. *Plug-In Development / Universal Extensions / Data Access / Use for Reporting* (→*FirstSpirit Online Documentation*).

Furthermore, user guidance has been improved when using customer specific reports in ContentCreator (interface `StaticItemsProviding`, package `de.espirit.firstspirit.client.plugin.dataaccess.aspects`, FirstSpirit Developer API).

78.4 Snippets: Outputting Metadata `5.2R18`

Contents from metadata which are defined explicitly on a given element may now be output in snippet definitions using the new system object *#meta*. This object is available when metadata are defined on the element for which the snippet is being generated. Output of individual input components from metadata is done via

```
#meta.IDENTIFIER
```

For further information, see *FirstSpirit Online Documentation*, "Template development / Template syntax / System objects / #meta".

Also, in the course of this work, an error was remediated: when metadata were output via API, it was possible that the language-dependent preset value was mistakenly output instead of the language-independent fallback value.

78.5 Rebrush for FirstSpirit graphical user interfaces `5.2R19`

As part of the revision of the design of the graphic user interface of FirstSpirit, which began in FirstSpirit version 5.2R17, improvements and further optimizations were made with the current FirstSpirit version. For example, the titles of input components (parameter `label`) are now displayed in capital letters in the SiteArchitect for better clarity in forms. If default values are defined for an input component, this is visualized by the addition of "(Default value)" in the title.

78.6 Different Validation Behavior for Different Languages 5.2R19

FirstSpirit SiteArchitect and ContentCreator notify the user of invalid content in input components. This invalid content may be due to infractions of rules that were specified by a template developer, an empty input component for which the attribute `allowEmpty="no"` is specified, or invalid references (such as use of a FirstSpirit object, e.g. a media element or a page reference, which has been deleted in the meantime). If an input component in the page, section, or dataset being edited is missing content or contains invalid content, it either cannot be saved (`scope="SAVE"`) and/or cannot be released (`scope="RELEASE"`), or a notification message specified by a template developer will be shown (`scope="INFO"`).

As of the current version of FirstSpirit, this validation may be deactivated for one or several project languages via the option "Validate language" found in the properties of the project in question (FirstSpirit ServerManager / project properties / page "Languages"):
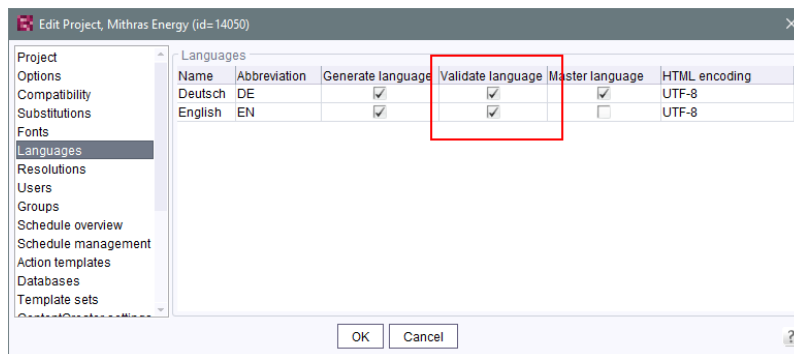
By default, the option is active for each project language, i.e. contents in that language will be validated in the associated project. If the option is deactivated for a language, contents in that language will no longer be validated. A page, section, or dataset can thus be saved and/or released although (valid) content does not exist in every language. This enables implementation of different validation behaviors for different languages.

If the option is reactivated, contents that do not adhere to the rules must first be modified in order to release or save the element.

Using the API, this option may be activated or deactivated via the method `setIgnoreValidation()` of the interface `Language` (package `de.espirit.firstspirit.access`, FirstSpirit Access API).

Note: This change also introduces modifications to internal classes. This can result in problems when establishing connections if the FirstSpirit Server is running a version >= 5.2R19 and another component (e.g., Tomcat web server) is still running a version < 5.2R19. In this case, the counterpart (in this case Tomcat with web apps) must be updated.

For further information, see

- *Documentation for FirstSpirit SiteArchitect*, "General operation / Invalid entries" and "FirstSpirit SiteArchitect / The menu bar / Search"

- *FirstSpirit Manual for Editors (ContentCreator)*, "Editing a preview page / Working with dialogs / Editing window / Rule violations"

- *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Languages"

- *FirstSpirit Online Documentation*, "Template development / Rules"

78.7   Access to FS_INDEX value set 5.2R2

FS_INDEX input components save references to data objects (such as those from external web services) using identifiers in string format. These identifiers are provided by the data-access plug-in, which is assigned to the index component in the form definition of a template. To access the actual data in an index entry, the session object for the data-access plug-in must be queried in order to obtain and further process a suitable data object using a string identifier.

For access to the value set of an FS_INDEX input component within presentation channel definitions, an `IndexAccessor` object type is returned, which not only offers access to the saved string identifiers, but also provides a list of the data objects which are relevant to the identifiers and have been resolved by the data-access plug-in.

In FirstSpirit version 5.2R2 and higher, an `IndexAccessor` type object is also returned in snippet definitions in the case of access to the value set for an FS_INDEX input component.

For more information on:

- Working with FS_INDEX, see *FirstSpirit Online Documentation*, "Template development / Forms / Input components / INDEX"

- The IndexAccessor data type, see *FirstSpirit Online Documentation*, "Template development / Template syntax / Data types / IndexAccessor"

- The definition of snippets, see *FirstSpirit Online Documentation*, "Template development / Snippets".

79   SiteArchitect / ServerManager

## 79.1   "JExplorer" browser engine withdrawn (Integrated preview for content)   2018-11

The integrated preview in FirstSpirit SiteArchitect (menu entries "View / Integrated preview" and "View / Browser engine") is based upon third-party software. The discontinuation of "JExplorer" as browser engine for the use of "Internet Explorer" has been announced with FirstSpirit 2018-07 (July 2018), and, as of FirstSpirit 2018-11, this browser engine has now been removed from FirstSpirit as planned. The menu item "Internet Explorer" has been removed in both FirstSpirit SiteArchitect ("View / Browser engine" menu) and ServerManager ("Project / Properties / Client applications / Browser engine"). Where "Internet Explorer" had been set in projects or in project properties, the "Google Chrome" browser engine will now be used automatically instead.

This is because the externally developed library, which is the basis for the browser engine, will no longer be developed / updated in the near future and has been officially discontinued by the manufacturer.

As an alternative, Google Chrome can be used further on for internal previews or, of course, every other browser for external previews (for example by deactivating the option "View / Integrated preview/ use for content" or by right-clicking on the preview icon or click with pressed Ctrl key).

For more information, see

- *Documentation for FirstSpirit SiteArchitect*, "FirstSpirit SiteArchitect / Menu bar / View / Browser engine"

- *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Client applications / Browser engine"

79.2 "Mozilla Firefox" browser engine withdrawn 2018-08

Special software is used for the "integrated preview" function in FirstSpirit SiteArchitect; this is integrated in SiteArchitect and is based on the browser being used in each case.

The Mozilla Firefox versions currently used in FirstSpirit do not support Java 9 and higher. With the latest FirstSpirit release, Mozilla Firefox has therefore been withdrawn as the browser engine for the integrated preview as planned. The menu items affected by this, "Mozilla Firefox (v3) (outdated)" and "Mozilla Firefox (v15)" in FirstSpirit SiteArchitect ("View / Browser engine" menu) and ServerManager ("Project / Properties / Client applications / Browser engine"), have been removed:
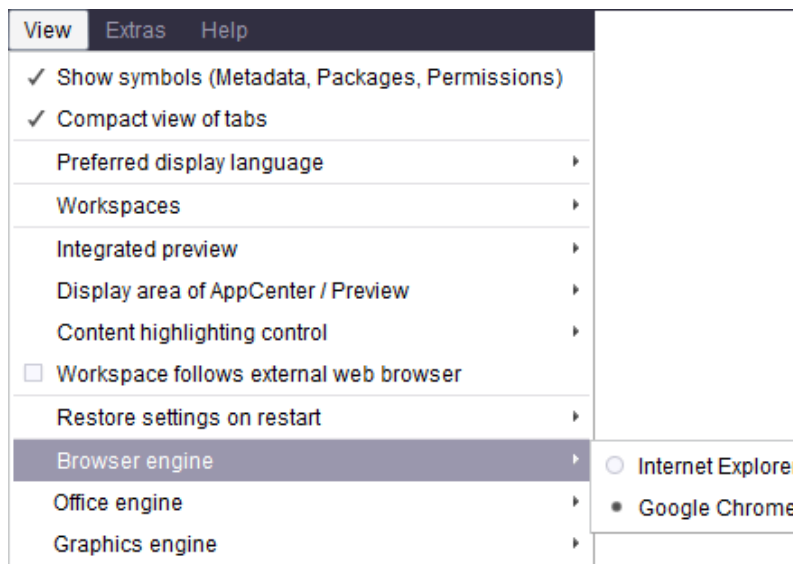
FirstSpirit SiteArchitect
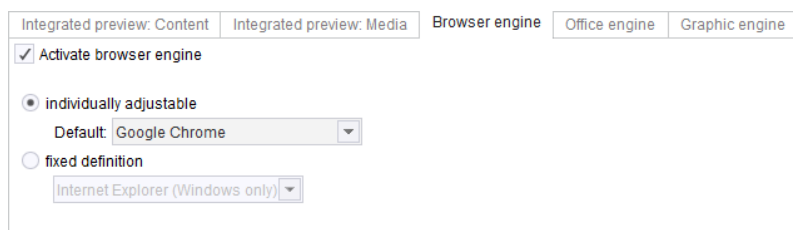
FirstSpirit ServerManager

Where Mozilla Firefox had been set in projects or in project properties, the "Google Chrome" browser engine will now be used automatically instead.

For more information, see

- *Documentation for FirstSpirit SiteArchitect*, "FirstSpirit SiteArchitect / Menu bar / View / Browser engine"

- *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Client applications / Browser engine"

79.3   Client Logging   5.2R7

Logging enables FirstSpirit developers and administrators to identify and correct issues. It happens at various places of FirstSpirit, e.g. log messages for actions on the server will be stored in the file `fs-server.log`, log messages for schedules in the file `fs-schedule.*.log` et cetera.

As of the current FirstSpirit version, log messages of SiteArchitect and ServerManager will be stored separately for each started client in a file in the user home directory of the respective user's client workstation in addition to the file `fs-clients.log` (in the directory `log` in the base directory of the FirstSpirit server, only used for exceptions).

- SiteArchitect: `.firstspirit*/logs/SiteArchitect*.log`

- ServerManager: `.firstspirit*/logs/ServerManager*.log`

The filename contains the client name (e.g. SiteArchitect or ServerManager) and a timestamp of the point of time when the client has been started, e.g.

```
SiteArchitect-2017-02-28T13-55-40.067.log
```

Log messages generated by SiteArchitect and ServerManager are therefore now better suited to be sent or uploaded. In order to indicate which log file belongs to which client, the menu "Help" can be used to identify it. The menu entry "Show log file in File Manager"
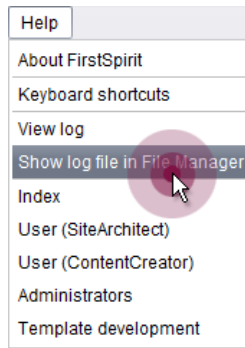
opens the local storage directory. The file with the current logging will be selected. The timestamp as part of the file name helps to identify the log messages of previously closed clients in the storage directory. Log files will be stored up to a total number of 100 files or until all files have reached a combined size of 100 MB. If one of those limits is reached, the oldest log files will be deleted one by one.

With the menu entry "View log" in the menu "Help" it is possible to display the current logging in a separate window:
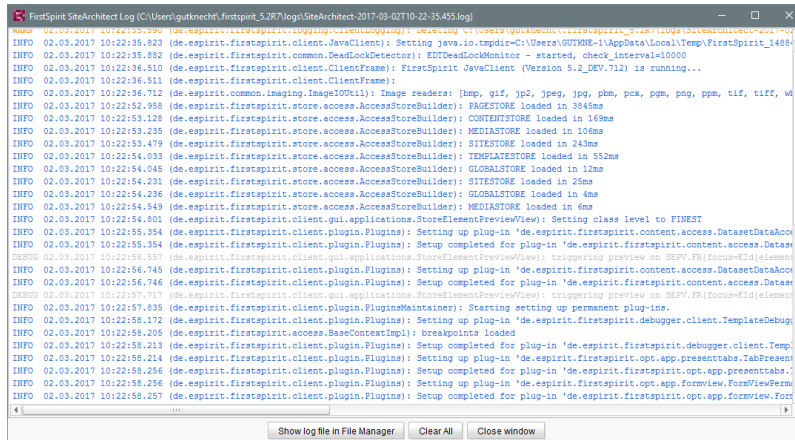
Log messages are displayed in different colors for each log level in order to improve clarity. By using the button "Clear All" it is possible to clear the log window. This does not affect the contents of the log file.

79.4 Speeding up file selection from directory structure of the client workstation 5.2R6

The file selection dialog allows selection of a desired file from the directory structure of the client workstation for upload to FirstSpirit SiteArchitect (e.g. Media store) or ServerManager (e.g. project import).
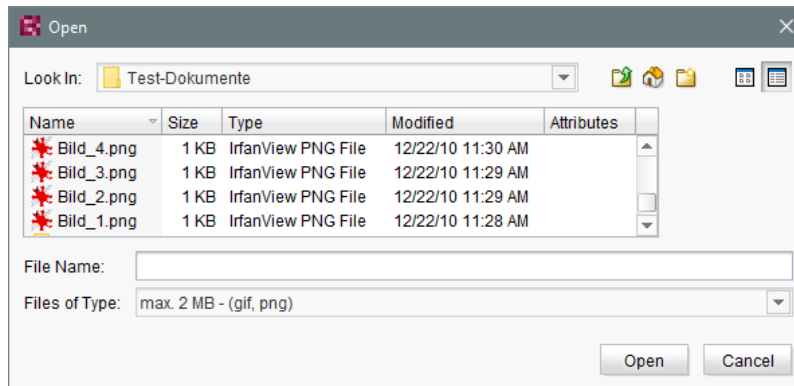
From the current FirstSpirit version onwards, the parameter

```
-DSynthetica.extendedFileChooser.sortEnabled=false
```

can be set in the connection or web start settings in order to deactivate the file selection dialog's sort functionality (column headers in the view mode "Details"). This can speed up work with the file selection dialog when the user needs to navigate among different directories of the client workstation's file system. If this parameter is set, an according entry will be logged to the log file `fs-server.log`:

```
INFO 26.09.2016 16:13:08.923 (de.espirit.common.gui.LookAndFeelUtil): disabled
sorting in file chooser'
```

Alternatively, files can also be uploaded into the Media store of FirstSpirit SiteArchitect using

- drag-and-drop and

- the "Media Import Wizard" ("Extras" menu).

For further information, see

- *FirstSpirit Manual for Administrators*,
  - chapter "Configuring connection settings" (section "Optional parameters")

  - chapter "Server properties / Start page"

- *Media Store / Creating media* ($\rightarrow$*Documentation FirstSpirit SiteArchitect*)

- *Media Store / Media Import Wizard* ($\rightarrow$*Documentation FirstSpirit SiteArchitect*)

- *General operation / Drag-and-drop functions* ($\rightarrow$*Documentation FirstSpirit SiteArchitect*)

79.5 Cessation of availability of operating system-specific third-party applications in AppCenter 2018-09

Some of FirstSpirit's functionality is based upon third-party software. Not all vendors of such third-party software have ensured that their software is compatible with Java 9 and above. Thus, functionality based upon such third-party software will no longer be available if FirstSpirit is run under Java 9+.

As of the current FirstSpirit release, the operating system-specific third-party applications in FirstSpirit SiteArchitect's AppCenter that were announced in FirstSpirit version 5.2R19 (March 2018) to be discontinued are, as planned, no longer available: office integration and image editing functionality via the integrated applications "PicMonkey" and "Pixlr". The associated menu entries and configuration options were removed:

- FirstSpirit SiteArchitect, menus
  - "View / Office engine"

  - "View / Graphic engine / Simple image editing (PicMonkey)"

  - "View / Graphic engine / Enhanced image editing (Pixlr)"

- FirstSpirit ServerManager
  - "Project properties / Client applications", tab "Office engine"

  - "Project properties / Client applications", tab "Graphic engine", options "Simple image editing (PicMonkey)" and "Enhanced image editing (Pixlr)"

79.6   Configuration of the FirstSpirit start page   5.2R19

There are now additional setting options for the FirstSpirit start page. Applications can be shown or hidden via groups / permissions on the start page. These settings include:

- Configuration of the start page: primary / secondary applications

- Configuration of the visibility of standard applications

- Connection settings: show standard applications (only visible for server administrators)

- Project specific configuration (restrictions) of permitted applications

ServerManager / Server properties / Start page
For further customization of the FirstSpirit start page, it is now possible to configure the primary and secondary applications on the start page in addition to configuring quick start entries.
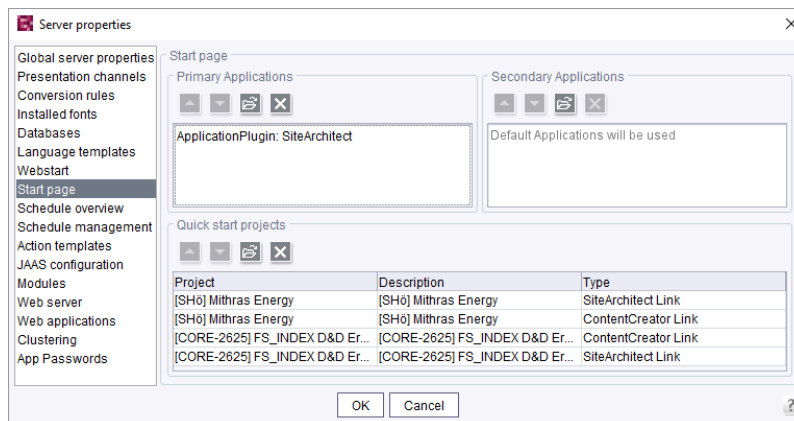
Primary Applications: Here you can configure the upper row with the large white icons for the area "Start applications" on the start page. If no application is selected for this row, the standard applications are displayed..

Secondary Applications: Here you can configure the lower row with the small black icons for the area "Start applications" on the start page. If no application is selected for this row, the standard applications are displayed.

The following applies to both areas: You can add your own applications. As soon as an application has been selected for the list, all (other) standard applications (if desired) must be listed individually.

ServerManager / Server properties / Modules

Via the module / component configuration the visibility of the standard applications for different groups can now be configured.
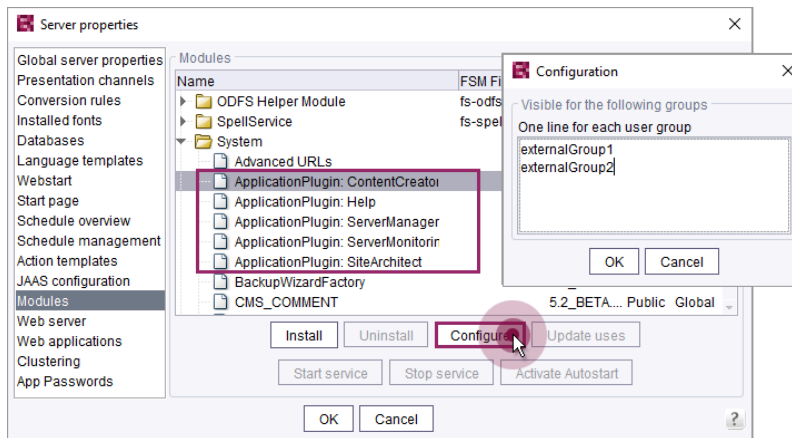
Here you can enter names of external groups whose users can see the applications. The names of the groups are to be defined like in the fs-server.conf properties "externalServerAdminGroup" and "externalLauncherGroup". If the group is empty, all users can see the corresponding application.

For more information on "External groups", confer to *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Groups".

Connection Settings

For the server administrator, an additional option has been added to the connection settings..

This option is given to the server administrator for security purposes, if he/she has blocked himself/herself access due to an unfavourable configuration. If the **Show default applications** option is active, only the standard applications in the previous configuration of their visibility are displayed.

This option does not affect the configuration of the visibility of standard applications.
For example, the server administrator cannot see an application even when the option is active, if it was excluded from visibility by a group definition.

ServerManager / Project properties / Applications
The settings made in the server properties can be restricted by configuring the allowed applications in a project-specific way.
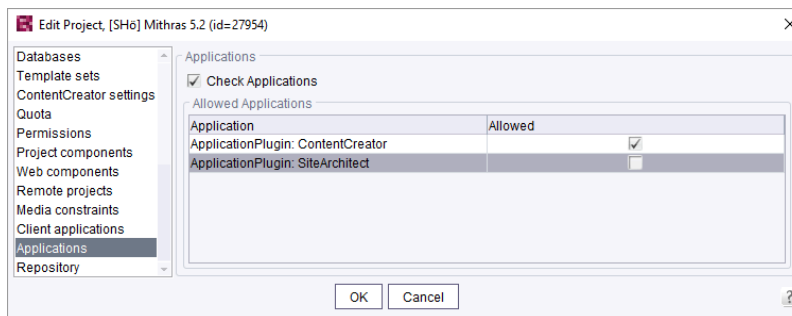
The configuration affects

- the project selection dialog;

- the quickstart entries;

- the list of recently opened projects.

79.7   Configurable directory for log messages   5.2R10

Log messages of ServerManager and SiteArchitect will be stored separately for each started client. The storage location of the log messages on the user's client workstation is now configurable. The directory can be configured using the parameter `CLIENT_HOME_DIR` or one of the operating-system specific parameters (e. g. `CLIENT_HOME_DIR_WINDOWS`) in the file `fs-server.conf` or via the connection settings.

Order of evaluation:

- First, the operating-system specific path details are evaluated, which are set in the connection settings (e.g. `CLIENT_HOME_DIR_WINDOWS`).

- Then the path information set in the connection settings using the parameter `CLIENT_HOME_DIR` are evaluated.

- Then the operating system-specific path details defined in `fs-server.conf` are evaluated (e.g. `CLIENT_HOME_DIR_WINDOWS`).

- Then the path information set in the `fs-server.conf` file using the parameter `CLIENT_HOME_DIR` are evaluated.

- If the parameter is neither set in the connection settings nor in `fs-server.conf`, the operating system-specific user home directory is used by default.

The information, which can be set server-wide for all users using `fs-server.conf,` can therefore be overwritten on a user-specific basis.

If a directory is given to which the respective user does not have any access permissions, a corresponding exception is logged.

For more information please see also *FirstSpirit Manual for Administrators*, Chapter "Roll-out process (workstation computer)".

79.8   Use of display names   5.2R21

Many parts of the FirstSpirit interface are flexible and can be adapted to meet the needs of a specific project and its users: Language-specific labels for the tree view, as well as form fields, tool tips, etc., can be entered in the editing area via what is called the "editorial language" (also known as the "display language", if the project administrator has configured this setting accordingly for the project). In SiteArchitect, any editor can select the language in which text should be displayed in the "View – Preferred display language" menu. If required, the technical names of the objects can also be shown.
The language display has now been optimized through more stringent use of stored display names and thus standardized.
As part of this optimization measure, the "View/Preferred display language/Display reference names in tree" menu item has been renamed "View/Preferred display language/Display reference names":
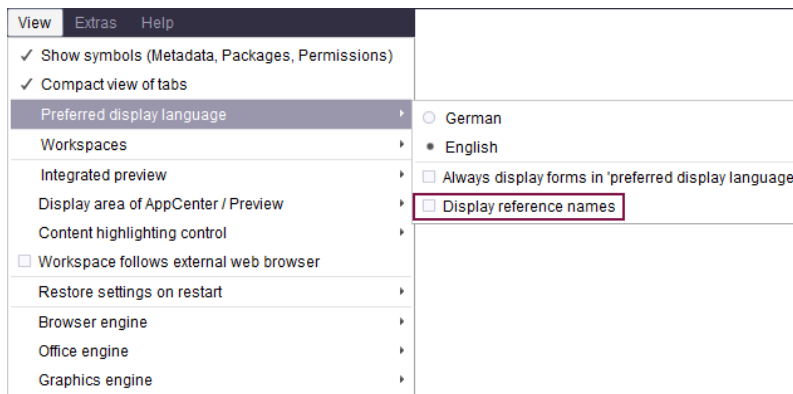
because this function is linked not only to the tree view but also, for example, to the editing area.

79.9   Reconnecting after Communication Errors   5.2R5

If a communication error occurred between SiteArchitect or ServerManager and the FirstSpirit server, clients previously needed to be exited manually and restarted after communication with the server was reestablished.

As of FirstSpirit version 5.2R5, active client sessions will no longer be automatically ended in this case. If a communication error occurs, the following dialog will be displayed:
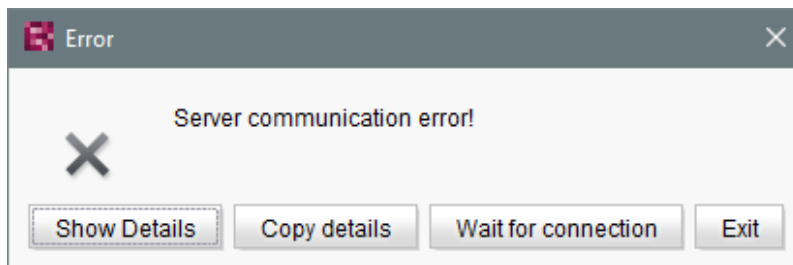
- Clicking "Exit" will close the client.

- Clicking "Wait for connection" will allow a user to continue to work with SiteArchitect or ServerManager if the connection can be reestablished within 1 minute. The dialog will then close automatically.

■ If the user does not click on either button, the message "Server connection re-established" will be displayed if the connection can be reestablished within 1 minute. Clicking on "OK" will close the dialog, and the user can continue to use the client.

If the connection cannot be reestablished within one minute, the message "Server connection closed" will be displayed, and the client must be closed by clicking "Exit".

80 Search

80.1 Weighting of Contents in Input Components 5.2R3

Weighting of content in search results may be specified per input component using the attribute `searchRelevancy` within the GOM XML tag of an input component (SiteArchitect: global search, search in data sources | ContentCreator: search in report area). For example, using this parameter, template developers may specify that elements which contain a search term in a headline input component should be displayed more prominently in search results than elements which only contain the search term in a body text input component. Additionally, individual input components may be configured so that their contents be ignored during indexing, which may increase indexing performance.

Input components may be configured with the following attributes in order to specify how their contents are handled during indexing:

■ `searchRelevancy="none"`: The content of an input component that is configured with this search relevancy value **will not be indexed**. Pages, sections, and datasets which contain input components configured with this search relevancy value will not appear in search results if the search term only appears in the contents of these non-indexed input components. Searching for contents of such input components using drag-and-drop will yield no results (message "The field is not eligible for search, as it is marked non-relevant for searching."). In data sources, such fields are also marked accordingly in the Simple Search user interface ("Not eligible for searching."):

and
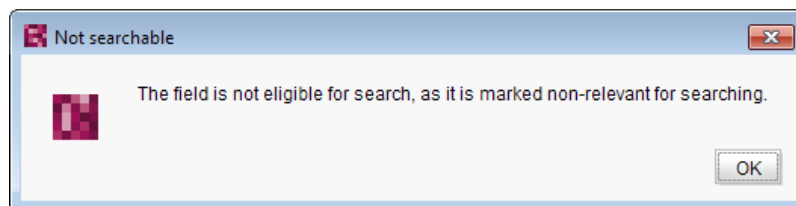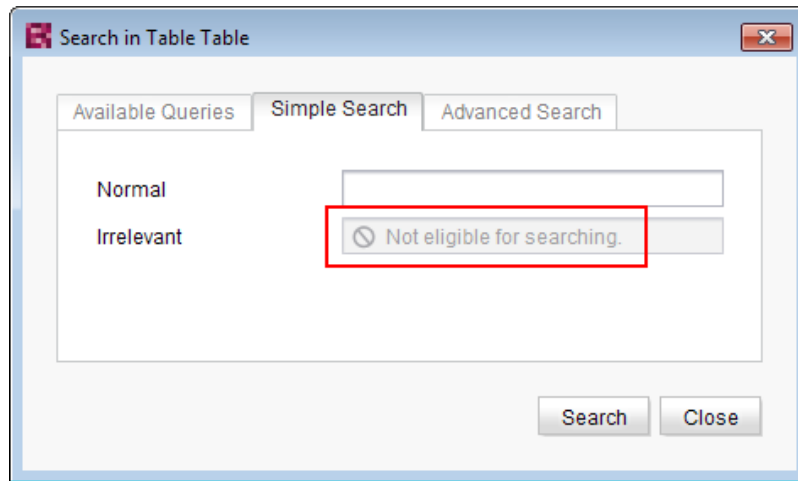
- `searchRelevancy="default"`: The input component's content **will be indexed with default weight**. This is the standard setting for input components.

- `searchRelevancy="high"`: The content of an input component which is configured with this search relevancy value **will be indexed with a higher weight** and thus displayed more prominently in search results (exception: search for datasets). This means that if a search term appears in both an element with an input component configured for high search relevancy and an element with an input component configured for default search relevancy, the element which contains the search term in a high-relevancy input component will be shown in a higher position in search results.

If the attribute is not specified for an input component, the component's content will be indexed with a default weight (`searchRelevancy="default"`).

For nested input components (FS_CATALOG, FS_INDEX, FS_LIST, CMS_INPUT_IMAGEMAP, CMS_INPUT_LINK--also CMS_INPUT_DOM and CMS_INPUT_DOMTABLE with one restriction, see below), input components of inner entries (which are based on other templates) will be indexed as follows:

computed searchRelevancy of input component of inner entry	searchRelevancy input component in template of inner entry		
	High	Default	None
High	High	High	None
Default	High	Default	None
None	None	None	None

- **Outer input component is configured with `searchRelevancy="none"`:**
  - **Inner entries will not be indexed** regardless of the `searchRelevancy` settings of input components in the templates used for inner entries.

- **Outer input component is configured with `searchRelevancy="default"`:**
  - In inner entries, contents of input components with `searchRelevancy="none"` **will not be indexed**.

  - In inner entries, contents of input components with `searchRelevancy="default"` **will be indexed with normal weight**.

  - In inner entries, contents of input components with `searchRelevancy="high"` **will be indexed with higher weight**.

- **Outer input component is configured with `searchRelevancy="high"`:**
  - In inner entries, contents of input components with `searchRelevancy="none"` **will not be indexed**.

  - In inner entries, contents of input components with `searchRelevancy="default"` and `searchRelevancy="high"` **will be indexed with higher weight**.

In general, **links in values of input components CMS_INPUT_DOM and CMS_INPUT_DOMTABLE** are indexed according to the `searchRelevancy` settings associated with single input components in link forms. However, the link text of a link (the input component which is selected in the link template's "Link text" option) will be indexed with the weighting of the CMS_INPUT_DOM or CMS_INPUT_DOMTABLE component.

Note: "Header fields" of snippets (tab "Snippet" in templates) are also indexed. If an input component is configured with a weighting "none" (`searchRelevancy="none"`) but its value is included in the template's snippet header field, searching for the input component's value will cause the associated element to appear in search results.

Changing the weighting setting of an input component in a template does not immediately affect the indexed data of existing elements based upon that template, and search results will continue to reflect the old weighting until elements based upon that template are modified and saved (at which time they will be reindexed in the background). Alternatively, the entire project or parts thereof may be reindexed via a schedule task or the FirstSpirit APIs, which does not require elements to be changed. However,

reindexing large numbers of elements is memory and CPU-intensive and should only be performed during a planned maintenance period!

For further information, see

- *Documentation for FirstSpirit SiteArchitect*, chapter "The global search" etc.

- *FirstSpirit Manual for Editors (ContentCreator)*, chapter "Search function in the report area" etc.

- *FirstSpirit Manual for Administrators*, chapter "Rebuild search index"

- *FirstSpirit Developer API*, interface `GomSearchRelevancy`
  (package `de.espirit.firstspirit.access.store.templatestore.gom`)

- *FirstSpirit Access API*, interface `SearchService`
  (package `de.espirit.firstspirit.access.search`)

- *FirstSpirit Developer API*, interface `QueryAgent`
  (package `de.espirit.firstspirit.agency`)

80.2   Controlling indexing of referenced datasets 5.2R12

When creating, editing, or deleting FirstSpirit elements (e.g. pages, sections, media), the contents and data of such elements are written into or removed from the index, respectively, so that elements can be found more quickly using search functionality. This indexing process also includes referenced elements. The number of references that have to be considered influences the duration of an indexing process. Especially datasets that reference further datasets in other tables can cause indexing of all referenced elements to run long due to the resulting complex data structures. Until now, the parameter `indexing.maxNoOfAssociations` (configuration file `fs-server.conf`) could be used to limit indexing of referencing datasets: when a defined limit of indexed elements was reached, indexing was aborted, and further elements were not written into the index. As of the current version of FirstSpirit, this parameter will no longer be evaluated and has been replaced with a new parameter, `indexing.relationshipPathLengthToFollow`, which allows better control of indexing.

As of the current FirstSpirit version, indexing of datasets that are referenced via

- FS_DATASET

- FS_INDEX (used for dataset selection via `DatasetDataAccessPlugin`)

- FS_LIST (type DATABASE)

may be configured such that the path length will be considered. For a dataset which references other datasets, this controls whether the contents of only this "origin" dataset should be indexed or the contents of this dataset and of the datasets it references should be indexed. If contents of referenced datasets should be indexed as well, the parameter allows specification of the path length to which references should be considered. For example, a path length 2 means that, in addition to the contents of the "origin" dataset, the contents of datasets referenced by this "origin" dataset as well as the contents of datasets referenced by these datasets will be indexed:
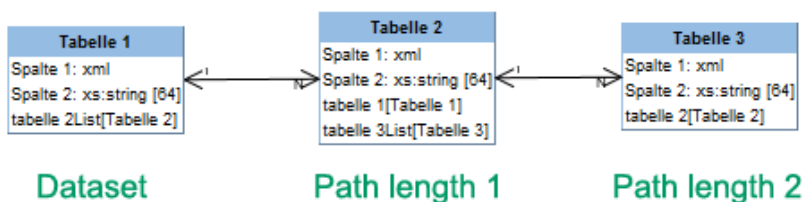
The path length can be set for the input components mentioned above via the parameter `indexing.relationshipPathLengthToFollow` in the configuration file `fs-server.conf`. By default, a path length "1" is assumed such that, for the input components mentioned above, datasets and the datasets they immediately reference are indexed. If no referenced datasets should be indexed, the parameter's value must be set to "0", e.g.

```
indexing.relationshipPathLengthToFollow=0
```

Other path lengths may be specified by setting the desired value. This configuration is applied server-wide for all projects.

> ! Datasets which are stored in the same table will not be indexed.

> **!** The indexing behavior illustrated here only applies to the input components mentioned above. For other input components which may reference datasets via CMS_INCLUDE_OPTIONS, contents of referenced datasets will not be indexed, but the ID of the referenced dataset, the label (tag `LABELS`), and the key (tag `KEY`) will be added to the index.

The indexing behavior illustrated here also applies to referenced datasets in pages and sections. The page or section in which the dataset-referencing input component is located is considered to be path length "0". With `indexing.relationshipPathLengthToFollow=0`, only the contents of the page or the section would be indexed. In order to also index contents of the referenced dataset, `indexing.relationshipPathLengthToFollow` must be set to a value of "1".

On a project/component level, the parameter `indexTreatment` may be used to manually extend the path length specified by `indexing.relationshipPathLengthToFollow` across certain tables, thereby practically increasing the value of the parameter `indexing.relationshipPathLengthToFollow` for individual input components. If `indexTreatment="follow"` is set, datasets which are referenced by the input component in question will be indexed along with the origin dataset. If the parameter is not set, `indexTreatment="default"` is assumed, and referenced datasets will be indexed according to the configuration of `indexing.relationshipPathLengthToFollow`. The parameter `indexTreatment` can thus only be used to extend indexing to a longer path length, but not to limit indexing.

If the path length should be extended via `indexTreatment="follow"` across several tables, `indexTreatment="follow"` must be set for the relevant input component in each table along the desired path. If `indexTreatment="follow"` is not set in a table template (this corresponds to `indexTreatment="default"`), indexing will stop.

> **!** Contents in input components for which the parameter `searchRelevancy="none"` is set will not be indexed, regardless of the configuration of `indexing.relationshipPathLengthToFollow` and/or `indexTreatment`.

> **!** Because the new parameters `indexing.relationshipPathLengthToFollow` and `indexTreatment` allow for more precise configuration of the indexing behavior for referenced datasets, the parameter `indexing.maxNoOfAssociations` will no longer be evaluated as of the current FirstSpirit version. In existing configurations, `indexing.maxNoOfAssociations` must be replaced with the new parameters in a suitable fashion. If `indexing.maxNoOfAssociations` was set to "0" or "1" in existing projects, `indexing.relationshipPathLengthToFollow` should be set to "0" after an update to the current version of FirstSpirit in order to ensure comparable behavior. Regardless of setting these new parameters, the set of search results may be different between the current FirstSpirit version and previous FirstSpirit versions, depending on the database schema.

Setting or modifying these parameters in retrospect will not have automatic effects on search results; the different indexing behavior will only be shown after modifying respective content. Alternatively, it is possible to reindex the entire project or parts of a project via a schedule task or the API. Such a reindexing process creates higher CPU and memory loads, however, and should only be carried out during a maintenance period!

In the context of these changes, the FirstSpirit API was extended. Use of the API is only relevant for development of project-specific input components.

The interface `ValueIndexer` (FirstSpirit Developer API, package `de.espirit.firstspirit.access.editor`) was extended with the following methods:

- *appendFormData(FormData formData, Language language, boolean followAssociations)*: This method is used to add content of form data (provided by the `formData` object) for a given language (`language` object) to the index. If `followAssociations` is set to *true*, dataset references contained in the form data will be followed.

- *appendAssociate(Associate associate, Language language, boolean followAssociations)*: This method allows adding data of an associated element in the given language to the index. If `followAssociations` is set to *true*, dataset references will be followed.
  If the method *associate(Entity)* is used, the method *appendAssociate()* will not have any effect if it is used for the same element.

Furthermore, the following interfaces were added to the package `de.espirit.firstspirit.access.editor`:

- `Associate`: Offers an abstract description of associated elements which may be referenced from form data.

- `GomIndexTreatment`: Provides the parameter `indexTreatment` for customer-specific input components.

For further information, see

- *FirstSpirit Manual for Administrators*, "FirstSpirit Server configuration / Configuration files (FirstSpirit Server) / FirstSpirit Server configuration (fs-server.conf) / Server", parameter `indexing.relationshipPathLengthToFollow`

- *FirstSpirit Online Documentation*, parameter `indexTreatment` for input components at "Template development / Forms / Input components"

- *FirstSpirit Online Documentation*, "Plug-In Development / Universal Extensions / Input Components / GOM Form Element"

80.3   Project-specific configuration of indexing for referenced datasets

5.2R15

When creating, editing, or deleting FirstSpirit elements (e.g. pages, sections, media), the contents and data of such elements are written into or removed from the index, respectively, so that elements can be found more quickly using search functionality. This indexing process also includes referenced elements. The number of references that have to be considered influences the duration of an indexing process. Especially datasets that reference further datasets in other tables can cause indexing of all referenced elements to run long due to the resulting complex data structures.

For this reason, it is possible to limit indexing of referencing datasets.

Already available (server-wide configuration): The path length for indexing of referencing datasets may be limited server-wide using the parameter `indexing.relationshipPathLengthToFollow` (specified in the configuration file `fs-server.conf`). This setting applies to indexing of datasets that are referenced via

- FS_DATASET

- FS_INDEX (used for dataset selection via `DatasetDataAccessPlugin`)

- FS_LIST (type DATABASE)

By default, a path length "1" is assumed such that, for the input components mentioned above, datasets and the datasets they immediately reference are indexed. If no referenced datasets should be indexed, the parameter's value must be set to "0", e.g.

```
indexing.relationshipPathLengthToFollow=0
```

Other path lengths may be specified by setting the desired value. This configuration is applied server-wide for all projects.

Newly available (project-specific configuration): As of the current version of FirstSpirit, it is now possible to overwrite the parameter `indexing.relationshipPathLengthToFollow` on a project-specific level using the new interface `SearchIndexAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API).

The iteration depth may now be adjusted, e.g. via script:

```
import de.espirit.firstspirit.agency.SearchIndexAgent;
sia = context.requestSpecialist(SearchIndexAgent.TYPE);
sia.setPathLengthToFollow(2);
```

If there is no project-specific configuration set, the server-side parameter will be evaluated.

81   System

81.1   Updating Apache FOP   5.2R14

Apache FOP ("Formatting Objects Processor") enables, for example, FirstSpirit content to be output in PDF format. A module is used to provide support for Apache FOP in FirstSpirit: *fs-fop.fsm*.
In the current version of FirstSpirit, the version of the Apache FOP used internally was updated from 1.1 to 2.2.

81.2 Update of libraries 5.2R16

With the current FirstSpirit version, the following, internally used libraries have been updated:

- **Synthetica** (Library for the graphical user interface)
  Update to version 2.3.30

- **ASM** (Library for analyzing and modifying Java bytecode)
  Update to version 6.0

81.3 Update of internally used software 2018-12

With the current FirstSpirit release, the following, internally used software has been updated:

- **ASM** (Library for analyzing and modifying Java bytecode)
  Update from version 6.2 to 7.0 (official Java 11 support)

- **Eclipse Jetty** (contained in the module `fs-jetty.fsm` / "FirstSpirit Jetty Service")
  Update to version 9.4.14

> **!** As before, use of Eclipse Jetty for production purposes is not recommended!

81.4 Updated third-party software 5.2R18

The browser engine "JxBrowser", used to integrate "Google Chrome", has been updated to version 6.18.

81.5 Integrated Software 5.2R4

With FirstSpirit 5.2R4, the following, internally used software has been updated:

- **Java Runtime Environment** ("JRE", included in FirstSpirit Launcher)
  Update from version 1.8.0_31 to 1.8.0_92

- **ASM** (Library for analyzing and modifying Java bytecode)
  Update from version 3.1 to 5.1

(improved interoperability between modules, which are developed for Java 8, and FirstSpirit)

- **Apache Derby** (integrated database for testing purposes)
  Update from version 10.11.1.1 to 10.12.1.1

> **!** As before, use for production purposes is not recommended!

> **!** Note: Use of Derby databases prohibits in-place **downgrades** to FirstSpirit version 5.2R3 or older. Error message after downgrade:
> `ERROR XSLAN: Database at [path] has an incompatible format with the current version of the software. The database was created by or upgraded by version 10.12.`
> Workaround: Export with FirstSpirit version 5.2R4 and import into a FirstSpirit server running version 5.2R3.

- **Eclipse Jetty** (integrated web server)
  Update from version 9.2.9 to 9.2.15
  Furthermore, security improvements have been undertaken concerning the default configuration.

> **!** As before, use for production purposes is not recommended!

81.6   Integrated Software   5.2R3

The integrated Chrome browser engine "JxBrowser" has been updated to version 4.9.5.

81.7   Integrated Software   5.2R12

With the current FirstSpirit version, the following, internally used software has been updated:

- **Java Development Kit** ("JDK", included in FirstSpirit Launcher)
  Update from version 1.8.0_121 to 1.8.0_131

81.8 Integrated software `5.2R14`

Updated the integrated Chrome browser engine "JxBrowser" to version 6.15.

81.9 Integrated Software `5.2R19`

With the current FirstSpirit version, the following, internally used software has been updated:

- **Java Development Kit** ("JDK", included in FirstSpirit Launcher)
  Update from version 8u131 to 8u161

81.10 Integrated Software `5.2R20`

With the current FirstSpirit version, the following, internally used software has been updated:

- **Google Web Toolkit** ("GWT", used for ContentCreator)
  Update from version 2.7 to 2.8.2

- **Beanshell**
  Update to version 2.1.9

- **Eclipse Jetty** (contained in the module `fs-jetty.fsm`)
  Update from version 9.4.8 to 9.4.9

- **ASM** (Library for analyzing and modifying Java bytecode)
  Update to version 6.1

81.11 Integrated Software `2018-06`

With the current FirstSpirit version, the following, internally used software has been updated:

- **Java Advanced Imaging Image I/O Tools** ("JAI", library for displaying and scaling images in FirstSpirit SiteArchitect)
  Update to version 1.4.0

81.12 Integrated software `2018-08`

The following internal software has been updated in the latest FirstSpirit version:

- **ASM** (library for analyzing and modifying Java byte code)
  Updated from version 6.1 to 6.2

- **Java Service Wrapper** (configuration of server start and FirstSpirit Server Java system)
  Updated to version 3.5.35

> **!** When the FirstSpirit Server is updated (auto update, in-place upgrade), the files of the Java Service Wrapper are **not** refreshed automatically. When an existing FirstSpirit Server is updated via the "tar" archive ("*.tgz" file) on Unix systems, therefore, the files with extension *.a* must be deleted from the *~/server/lib* and *~/server/lib-isolated* directories following a manual update.

81.13 Integrated Software `5.2R21`

With the current FirstSpirit version, the following, internally used software has been updated:

- **Java Development Kit** ("JDK", included in FirstSpirit Launcher)
  Update from version 8u161 to 8u171

81.14 Integrated Software `2018-07`

With FirstSpirit release 2018-07, the following, internally used software has been updated:

- **Eclipse Jetty** (contained in the module `fs-jetty.fsm`)
  update from version Version 9.4.9 to 9.4.11

> **!** As before, use of Eclipse Jetty for production purposes is not recommended!

81.15 Integrated Software `2018-09`

With the current FirstSpirit version, the following, internally used software has been updated:

- **Oracle Java** (included in FirstSpirit Launcher)
  Update from version 8u171 to 8u181

81.16 Integrated Software 2018-11

With the current FirstSpirit version, the following, internally used software has been updated:

- **JxBrowser** (Chrome browser engine for displaying the integrated preview in FirstSpirit SiteArchitect)
  Update to version 6.21
  The engine now uses "Chromium" in the version 64.0.3282.24. In addition, a 64bit version of the chromium browser is now used on 64bit systems.

- **Google Guava**
  Update to version 27.0-jre

> **!** After the update of Google Guava the FSDevTools have to be updated in case these are used. A new version of the FSDevTools (Release 2.2.692) will be released at the same time as FirstSpirit 2018-11. This can be downloaded from https://github.com/e-Spirit/FSDevTools/releases.

81.17 Signing with SHA-256 5.2R7

Previously, FirstSpirit JAR files were signed using SHA-1. Oracle is planning to cease support of SHA-1 in the JDK version lines 6, 7, and 8 in April 2017 (see https://www.java.com/en/jre-jdk-cryptoroadmap.html).

Due to this reason, as of the current FirstSpirit version, signing is now carried out using SHA-256.

Starting in April 2017, if an existing FirstSpirit installation should be used with a newer Java version which no longer supports SHA-1, an update to the current FirstSpirit version is required as well in order to continue using FirstSpirit with Oracle JDKs.

For further information, see FirstSpirit Community.

If you have further questions about this topic, please contact e-Spirit's Technical Support team via https://help.e-spirit.com.

81.18 Using Java 9 (EAP) 5.2R18

As of FirstSpirit version 5.2R18, support for Java 9 (for FirstSpirit Server and Clients) will be part of the early access program ("EAP", see Chapters "FirstSpirit product update 2018", and "Oracle Java"). Using existing FirstSpirit installations with Java 9 will require slight changes to configuration files in the file system:

1.   First, perform an inplace upgrade of the desired FirstSpirit server (see *FirstSpirit Installation instruction*, Chapter "Via a tar archive"). In this way, the start script will be updated automatically (`fs5` for Linux).

2.   Replace the file `fs-wrapper.conf` (or for servers running in "isolated mode" the file `fs-wrapper.isolated.conf`) in the FirstSpirit subdirectory `~\conf` by the content of the file `fs-wrapper.conf.default.txt` (or by the content of the file `fs-wrapper.isolated.conf.default.txt`) in the subdirectory `~\conf\conf-all` and adopt individual changes which you have made in the file `fs-wrapper.conf`.

3.   Copy the files
     `fs-wrapper-j1.include.conf.default.txt`
     `fs-wrapper-j2.include.conf.default.txt`
     from the subdirectory `~\conf\conf-all` to `~\conf`, rename them to
     `fs-wrapper-j1.include.conf`
     `fs-wrapper-j2.include.conf`
     and adopt the GC and storage parameters to the individual requirements of the FirstSpirit server.

FirstSpirit can also be used with Java 9 as a Windows Service. If you wish to do this, please contact Technical Support for assistance.

New installations do not require a change of the above mentioned files.
Due to the extended security checks in Java 9, the use of this Java version will lead to slowdown, especially during client start-up and during the first execution of functionality that is dynamically downloaded by the client.
If Java 9 is being used, a corresponding message is logged when the Server is started.

81.19 Using Jetty as a module (EAP) 5.2R18

As of FirstSpirit version 5.2R18 the module `fs-jetty.fsm` can also be used with FirstSpirit servers that are not operated in "isolated mode" but in "legacy mode". For usage in "legacy mode" it is part of the early access program ("EAP"). This module bases on the most recent version: 9.4. However, this version is not compatible with Java 7 and requires at least Java 8.

In order to use Jetty as a module, the module `fs-jetty.fsm` has to be installed on the FirstSpirit server and the corresponding service "JettyService" has to be started in the server properties of the ServerManager:
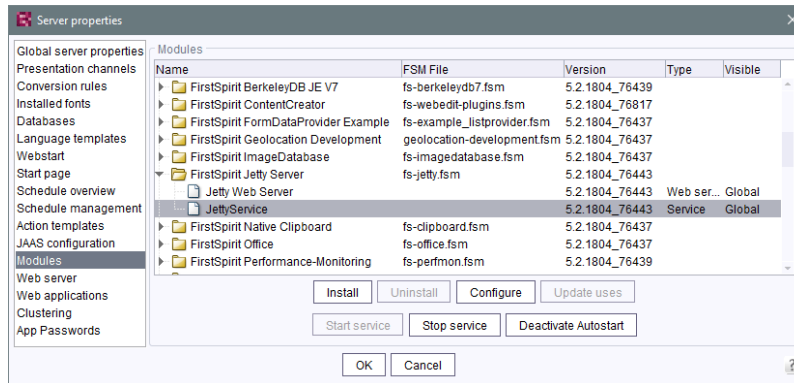
Here it is also possible to configure the favored port (changing the port requires a restart of the service:
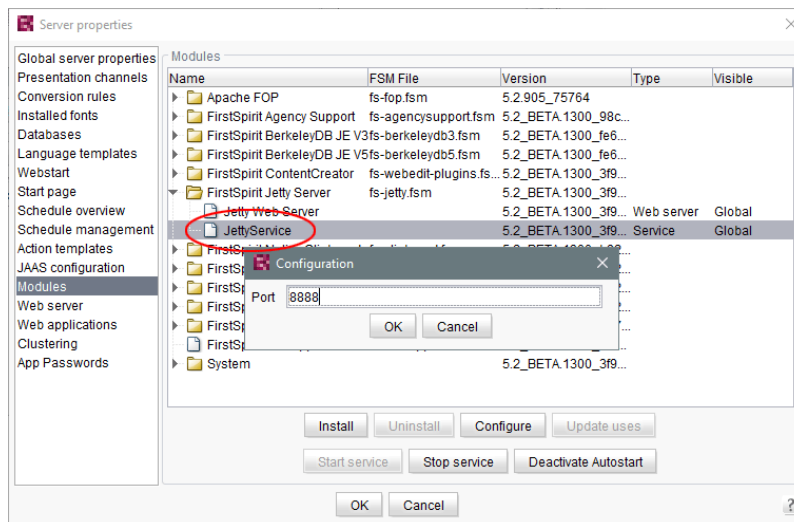
A new web server of the type "Jetty Web Server" may be added using "Webserver" in the server properties (e.g. with the name "IsolatedJetty"):
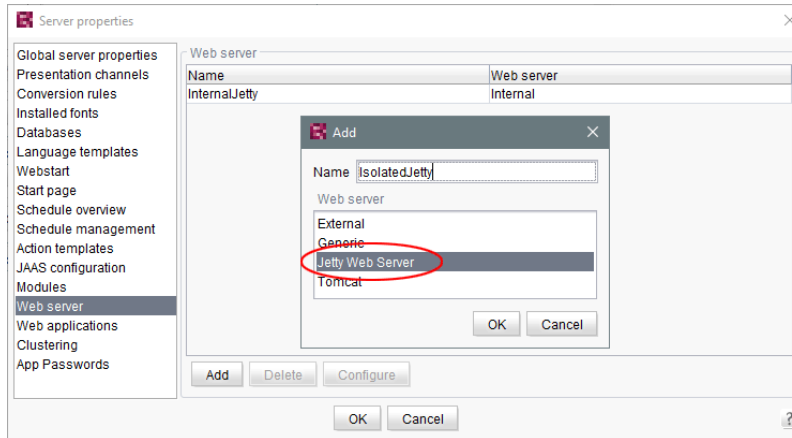
The web server may now be selected in the project properties under "Web components":

! Both the earlier implementation "InternalJetty" and the new implementation as a module run within the same JavaVM as the FirstSpirit server. This configuration is not suitable for production operation and should only be used for tests. For more complex configuration requirements (e.g. adjustment of memory size, timeouts, number of threads per deployed application, …), use of an external web server (e.g. Tomcat) is recommended.

82 Template Wizard

82.1 Detecting and merging changes 5.2R2

The FirstSpirit Template Wizard offers tools for detecting changes to the source object and then merging this changed content with content which has already been edited and imported.

This involves differentiating between three sources:

- Local root directory

- Import project

- FirstSpirit project

Changes can be made:

- between the local root directory and the import project

- between the import project and FirstSpirit project

For more information, see *FirstSpirit Online Documentation*, "Template development / Template Wizard / Detecting changes".

82.2 Activate/deactivate crawling 5.2R2

The FirstSpirit Template Wizard allows you to load HTML content into a project. An external URL can be specified as a source for this.
The new "Follow links" checkbox can now be used to configure "Crawling" ("Select URL" function).
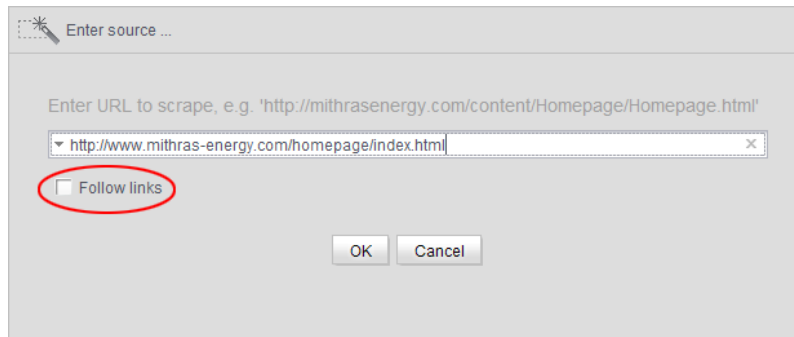
- If the checkbox is **not checked**, then crawling is restricted to the HTML structure transferred here. In this case, only the transferred HTML structure is analyzed and added to the import project. Other URLs referenced within the HTML structure are not analyzed. This is the default setting.

- If the checkbox is **checked**, all URLs referenced in the transferred HTML structure are analyzed and added to the import project. If these URLs then in turn reference other URLs, they too are analyzed, etc. In this case, you must ensure that the nesting depth is not too deep, as the import process can potentially take a long time if there are a large number of URLs.

For more information on working with the FirstSpirit Template Wizard, see *FirstSpirit Online Documentation*, "Template development / Template Wizard".

82.3 Protection against simultaneous project editing 5.2R2

The FirstSpirit Template Wizard infrastructure partially automates the process of transferring HTML mockups to FirstSpirit. It provides functions which can analyze the HTML templates supplied, identify referenced images and files in HTML content, and import all required content into FirstSpirit.

In FirstSpirit version 5.2R2 and higher, FirstSpirit ensures that import projects can only be edited by one user at a time. If the selected import project is already open in the Template Wizard and being used by another FirstSpirit template developer, the message "Agency Project is already locked by [...]".
In this case, the project cannot be loaded until the other user closes it in the Template Wizard.

For more information on working with the FirstSpirit Template Wizard, see *FirstSpirit Online Documentation*, "Template development / Template Wizard".

82.4   Configure overview   `5.2R2`

The "Overview" tab shows all the content that has been imported into the Template Wizard to date. They are displayed in table format with the name, source path, file name, etc. This view can be configured by clicking the icon at the right-hand edge of the table header:
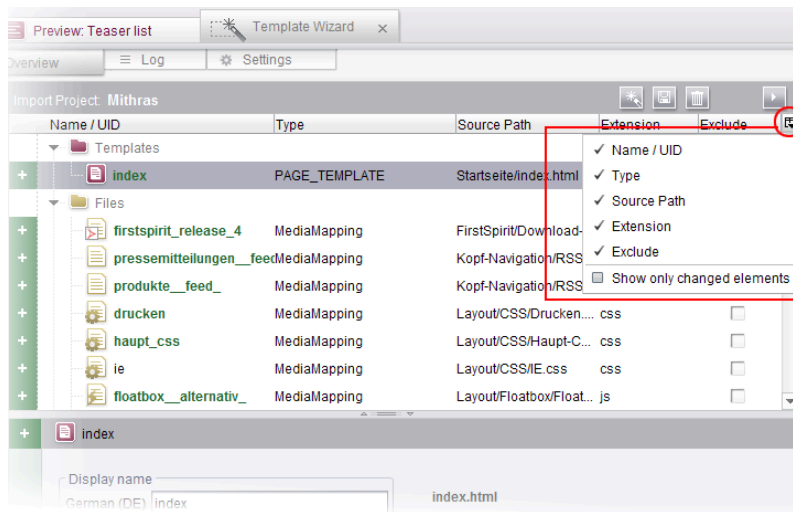
This can be used to determine which columns are shown or hidden.

If the "Show only changed elements" checkbox is activated, then only elements that have changed compared to the last status imported are displayed in the overview (inserted as new, changed in the design deliverable, deleted in the design deliverable, etc.).

For more information, see *FirstSpirit Online Documentation*, "Template development / Template Wizard / Overview".

83   Deprecations

For e-Spirit, an important goal in software development is to avoid introducing incompatibilities and migration expenditures related to updating from one FirstSpirit release to the next as much as possible or to compensate for these within the software. FirstSpirit updates should generally be deployable with little effort or able to be carried out in a fully automated fashion.

However - not least in order to ensure maintainability and to future-proof the software - e-Spirit cannot fully avoid replacing existing functionality with new mechanisms. In the future, functionality that will be

removed from the software will be listed in this section, including the date at which time the functionality will be removed.

Functionality	Deprecated as of	Will be removed/ Was removed as of
Input component FS_LIST	5.2R3	
FirstSpirit Developer API: de.espirit.firstspirit.agency.GroupsAgent	5.2R15	
Oracle Java 7 Support	5.2R15	2018-06
FirstSpirit Access API: delete (de.espirit.firstspirit.access.AccessUtil)	5.2R18	
Integrated Jetty	5.2R18	2018-08
Integrated preview for content (Internet Explorer old)	5.2R18	5.2R21
Integrated preview for content (Mozilla Firefox, v3 and v15)	5.2R18	2018-08
Operating system-specific third-party applications in the AppCenter of the FirstSpirit SiteArchitect (exception: browser Integration)	5.2R19	2018-09
Oracle Berkeley DB 5 Support	5.2R21	2018-11
Oracle Berkeley DB 3 Support	5.2R21	2018-11
Windows installation program	2018-06	
FirstSpirit Access API: release (de.espirit.firstspirit.access.AccessUtil)	2018-06	
FirstSpirit Developer API: remainingDurationOfCurrentStageInMillis (de.espirit.firstspirit.server.MaintenanceModeInfo)	2018-07	
FirstSpirit Launcher (old)	2018-07	2018-11
Browser Engine "Internet Explorer"	2018-07	2018-11
FirstSpirit Developer API: getLastLoginAsDate (de.espirit.firstspirit.agency.UserStatisticsAgent)	2018-07	

Functionality	Deprecated as of	Will be removed/ Was removed as of
FirstSpirit Developer API: getStartingTimeOfStageAsDate (de.espirit.firstspirit.server.MaintenanceModeInfo)	2018-07	
FirstSpirit Developer API: getDeletedStoreNodes(); (de.espirit.firstspirit.feature.FeatureInstallResult)	2018-10	
FirstSpirit Access API: setSelectedWebserverConfiguration (de.espirit.firstspirit.access.serverConfiguration)	2018-10	
FirstSpirit Developer API: getLostAndFoundStoreNodes(); (de.espirit.firstspirit.feature.FeatureInstallResult)	2018-10	
FirstSpirit Access API: setSelectedWebServer (de.espirit.firstspirit.access.project.Project)	2018-10	
FirstSpirit Access API: getSelectedWebServer (de.espirit.firstspirit.access.project.Project)	2018-10	
FirstSpirit Access API: getSelectedWebserverConfiguration (de.espirit.firstspirit.access.serverConfiguration)	2018-10	
FirstSpirit Access API: de.espirit.firstspirit.access.store.Previewable	2019-01	

84 Overview

ID	Description	Categories	Version
CORE-26	The default value for the `sendAccepted` parameter when using the Kerberos login module has been changed. Further information can be found in chapter "Administration / Modules: Log in via Kerberos ticket "KerberosLoginModule")".	FirstSpirit Administrator, Modules	5.2R2

ID	Description	Categories	Version
CORE-31	A meaningful error message is now displayed when trying to delete the source section of a section reference.	ContentCreator, Editor	5.2R2
CORE-35	In "FirstSpirit ContentTransport", import and export of project properties require at least project administrator privileges, import of server properties requires server administrator privileges. Attempting to create a feature as a standard user without the privilege levels indicated above could lead to erroneous behavior.	Content Transport, Security	5.2R3
CORE-63	The description was not always included for the resolution under the project properties.	FirstSpirit Administrator, ServerManager	5.2R2
CORE-65	The language switching behavior for the input component FS_CATALOG has been optimized.	Input Components, SiteArchitect	5.2R3
CORE-66	After importing a project with historic schedule task data, the history was not taken into account during server shutdown, causing the task history to be unavailable once the server was started again.	FirstSpirit Administrator, Project export / import, ServerManager, Tasks	5.2R2
CORE-72	Optimized behavior when cropping media elements of type Picture multiple times in a row.	Media Store, Services, SiteArchitect	5.2R2
CORE-73	In the input component FS_INDEX, clicking on an invalid reference in the snippet view may have resulted in a malfunction.	Input Components, SiteArchitect	5.2R3
CORE-74	The template set for preview viewports has been taken into more careful consideration in the "Multi Perspective Preview" function.	Multi Perspective Preview, SiteArchitect	5.2R2
CORE-75	Media type and size restrictions have been taken into more careful consideration in the selection dialog when uploading media.	Media Store, SiteArchitect	5.2R2

ID	Description	Categories	Version
CORE-82	When copying a dataset in a data source where a workflow was in progress, the workflow status was erroneously transferred.	Content Store, SiteArchitect, Workflow	5.2R2
CORE-84	In the schema editor, the XML file of the database schema will now be correctly updated when deleting relations.	Developer, Template Development	5.2R2
CORE-87	The process of preselecting the referenced dataset in the selection dialog of the FS_DATASET input component has been improved.	Content Store, Input Components, SiteArchitect	5.2R2
CORE-88	The way version comments for datasets are handled has been optimized.	Content Store, SiteArchitect, Version history	5.2R3
CORE-89	After installation, the option to use the launcher was not activated in the connection settings.	Launcher	5.2R2
CORE-91	Navigation in the server/project properties using the arrow keys (or "cursor keys") has been optimized.	FirstSpirit Administrator, ServerManager, Tasks	5.2R2
CORE-92	The full-text search has been improved with regard to longer search texts.	Search, SiteArchitect	5.2R3
CORE-100	Revised the set of privileges required to modify menu order.	Permissions, Site Store, SiteArchitect	5.2R2
CORE-101	In ContentCreator, optimized performance when selecting media or page references in the input component FS_REFERENCE.	ContentCreator, Input Components, Performance	5.2R4
CORE-102	Optimized the selection view in the selection dialog (tab "Selection") for the input component FS_LIST.	Input Components, SiteArchitect	5.2R4
CORE-114	Optimized "Select project" page of the Template Wizard's project creation/loading dialog.	SiteArchitect, Template Development, Template Wizard	5.2R2
CORE-118	Optimized visualization of elements which are included in a CorporateContent package.	Corporate Content, SiteArchitect	5.2R4

ID	Description	Categories	Version
CORE-122	In a workflow, performing a release after a state change triggered via a script in an automatic activity could lead to erroneous behavior.	SiteArchitect, Workflow	5.2R2
CORE-123	Within the FS_LIST (PAGE type) input component, an empty check (EMPTY property) has been optimized for rules.	Dynamic Forms, SiteArchitect	5.2R2
CORE-124	Optimized error handling when starting a workflow which contains an error state.	SiteArchitect, Workflow	5.2R2
CORE-132	The process of reading out the FS_INDEX input component into table templates has been optimized.	ContentCreator, Developer, SiteArchitect, Template Development	5.2R2
CORE-136	Uploading a media file which failed media restriction checks could lead to erroneous behavior.	Media Store, SiteArchitect	5.2R2
CORE-137	When double clicking the resolution of an image in the Media store of SiteArchitect, the corresponding image preview will now be displayed again.	Media Store, SiteArchitect	5.2R2
CORE-138	Optimized generation of details flyouts for report entries.	ContentCreator	5.2R2
CORE-143	Optimized version comparison for subforms.	SiteArchitect	5.2R2
CORE-144	The group/user combo box is now sorted alphabetically in the dialog for configuring the workflow permissions.	Developer, Permissions, Workflow	5.2R2
CORE-145	Optimized clearing of inline formatting in the rich text editor (input component CMS_INPUT_DOM).	ContentCreator, Input Components	5.2R2
CORE-146	The process of displaying rule violations in subforms (e.g., a link form in the CMS_INPUT_LINK input component) has been optimized.	Dynamic Forms, Input Components, SiteArchitect	5.2R2
CORE-147	After closing a ServerManager dialog when using a Mac OS X operating system, the main window was not always in focus.	Server Administrator, ServerManager	5.2R2

ID	Description	Categories	Version
CORE-150	Methods for determining the absolute path to the schedule entry directory Further information can be found in chapter "Module Development, Scripts, API: Methods for determining the absolute path to the schedule entry directory".	Developer, FirstSpirit API, Generation	5.2R2
CORE-151	In order to comfortably perform updates of modules which include project or web application components, ServerManager provides the button "Update uses" under "Server / Properties / Modules". Erroneously, not all changes were regarded after updating a module and updating uses of module components.	Modules, ServerManager	5.2R3
CORE-153	The content of input components can be checked in rules with a regular expression (matches). The regular expression can be used to check whether the editor has included at least one character which is not the equivalent of a whitespace character (blank space, tab space, etc.). A problem could occur during a check of this type if the editor had never made changes to an input component.	Dynamic Forms, SiteArchitect	5.2R2
CORE-158	Performance improvements in the area SiteArchitect.	SiteArchitect	5.2R3
CORE-160	It is now possible to restrict the use of action templates. Further information can be found in chapter "Administration: Setting restrictions on the use of action templates".	FirstSpirit Administrator, Server Administrator, ServerManager, Tasks	2018-06
CORE-163 CORE-204	Improved support of input components FS_CATALOG and FS_INDEX in subforms.	Input Components, SiteArchitect	5.2R2

ID	Description	Categories	Version
CORE-164	Modules with required missing references to other modules are now visualized appropriately in FirstSpirit ServerManager and can be uninstalled from the FirstSpirit Server without leaving any traces. Further information can be found in chapter "Module Development, Scripts, API: Handling dependent modules".	FirstSpirit Administrator, Module development, ServerManager	5.2R2
CORE-170	Improved performance in aspects of external synchronization.	External synchronization, SiteArchitect	5.2R2
CORE-171	In "External Synchronization", improved handling of invalid form elements and erroneous rule definitions.	External synchronization	5.2R4
CORE-178	Logging of the ContentCreator may have resulted in a malfunction when using the "FirstSpirit DynamicPersonalization" module.	ContentCreator, Modules	5.2R2
CORE-179 CORE-111	The FirstSpirit Launcher functions have been improved.	Launcher, SiteArchitect	5.2R2
CORE-181	Importing a project export, which has been created with FirstSpirit version 5.0R4 or lower, may have resulted in a malfunction in URLs for individual datasets.	FirstSpirit Administrator, Project export / import	5.2R2
CORE-186	Optimized interaction pattern when executing workflows with automatic actions on multiple objects.	SiteArchitect, Workflow	5.2R7
CORE-187	FirstSpirit version 5.2R3 introduces the new interfaces `OpenComparisonDialogOperation` and `OpenMergeDialogOperation` (both in the package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer-API). Further information can be found in chapter "Module Development, Scripts, API: New Interfaces to Open Version Comparison and Merge Dialogs".	Developer, FirstSpirit API, SiteArchitect	5.2R3
CORE-189	The display for the design elements (CMS_LABEL or CMS_GROUP), which is controlled by rules, has been improved.	ContentCreator, Dynamic Forms, Input Components	5.2R2

ID	Description	Categories	Version
CORE-191	Optimized output of nested levels in FS_INDEX input components.	Developer, SiteArchitect, Template Development	5.2R2
CORE-192	In the CMS_INPUT_IMAGEMAP input component, the display of remote media has been optimized.	ContentCreator, Input Components	5.2R2
CORE-194	The sending of an e-mail to a list of users or user groups has been improved in a workflow. Further information can be found in chapter "SiteArchitect: Configuring e-mail messaging in workflows".	Developer, SiteArchitect, Workflow	5.2R2
CORE-197	Deleting an entry with a rule violation in the FS_CATALOG input component, may have resulted in a malfunction.	Dynamic Forms, Input Components, SiteArchitect	5.2R2
CORE-202	When populating an FS_INDEX input component via drag and drop from a report, restrictions imposed by the rule property "ADD" were not taken into account.	Dynamic Forms, Input Components, SiteArchitect	5.2R2
CORE-203	The process of updating the detail page of a content projection in the integrated preview when editing a dataset has been optimized.	Content Store, Preview, SiteArchitect	5.2R2
CORE-208	When creating language-dependent media via drag-and-drop from another language, the file was erroneously not transferred from the source language.	Media Store, SiteArchitect	5.2R2
CORE-212	The process of generating content from an FS_INDEX input component in a nested structure has been improved.	Developer, Generation, Input Components	5.2R2
CORE-213	Improved display of mappings in table templates for projects with many languages.	Developer, SiteArchitect, Table templates, Template Development	5.2R2
CORE-214	Optimized rendering of the input components FS_CATALOG and FS_INDEX.	SiteArchitect	5.2R16

ID	Description	Categories	Version
CORE-215	Optimized editing of metadata on the root node of the Site Structure store.	ContentCreator, Site Store	5.2R3
CORE-219	Capitalization is no longer taken into consideration when performing global searches in the "Search in templates" system filter.	Search, SiteArchitect	5.2R2
CORE-220	In "Content Transport" functionality, installing a feature could lead to erroneous behavior if the feature contained the project property "Schedule entries", wherein one of the schedule entries referenced an action template.	Content Transport	5.2R3
CORE-221	In "Content Transport" functionality, optimized interaction pattern for assembly of features that should only contain project properties.	Content Transport	5.2R3
CORE-229	The *getHeight()* method from the "MappingMedium" interface (Access API, *de.espirit.firstspirit.access.editor.value* package) has been optimized.	Developer, SiteArchitect, Template Development	5.2R2
CORE-230	Improvements have been made to date selection in the CMS_INPUT_DATE input component.	ContentCreator	2018-07
CORE-232	Optimized output of inherited variable values of a menu level in the Site Structure store.	Site Store, SiteArchitect	5.2R2
CORE-238	Disabling the "Delete" icon for the input component FS_LIST (no `<ACTION name="REMOVE"/>` defined) was erroneously not observed in ContentCreator.	ContentCreator, Input Components	5.2R5
CORE-243	Links without link text in the CMS_INPUT_DOM input component may have resulted in a malfunction within the indexing process.	FirstSpirit Administrator, Indexing, Input Components	5.2R2
CORE-244	The FS_LIST (DATABASE type) input component was liable to malfunctions when using language-independent input components in the internal form in conjunction with rules.	Dynamic Forms, Input Components, SiteArchitect	5.2R2

ID	Description	Categories	Version
CORE-245	In rare cases, specific configurations of FS_REFERENCE could lead to erroneous behavior in ContentCreator: in such cases, not all elements eligible for selection were displayed. Further information can be found in chapter "ContentCreator: Filter in FS_REFERENCE via <SOURCES>".	ContentCreator, Developer, Input Components	5.2R3
CORE-253	In very rare instances, the defined rules ("Dynamic forms" functionality) were erroneously not taken into account in a data source.	Content Store, Dynamic Forms, SiteArchitect	5.2R3
CORE-260	For a project, several remote projects can be configured that all have the same remote category. In an error case (e.g. if a remote project was deleted), the error message now mentions the symbolic name of the project in question when saving the remote configuration of an input component (e.g. FS_REFERENCE, tag <CATEGORY>).	Remote access, SiteArchitect	5.2R12
CORE-264	An external group may be used on a FirstSpirit server in order to assign server administrator privileges to this group (user settings, attribute "Server Administrator"). Furthermore, it is possible to prohibit the server administrator (user "Admin") to perform editorial activities in a project (i.e. to open a project). Erroneously, this prohibition was also applied to users with server administrator privileges.	Corporate Content, Editor, Permissions, Server Administrator, SiteArchitect	5.2R3
CORE-275	In the input component CMS_INPUT_DOMTABLE (enableImport="yes" option), inserting content from Microsoft Excel may have resulted in a malfunction.	Clipboard, Input Components, SiteArchitect	5.2R3
CORE-278	Improved performance of importing media with many resolutions.	Content Transport	5.2R4
CORE-281	Optimized interaction pattern when cancelling a workflow.	ContentCreator	5.2R6
CORE-289	The ability for several users to edit a dataset in parallel has been optimized.	Content Store, SiteArchitect	5.2R2

ID	Description	Categories	Version
CORE-297	It is only possible to define a group exclusion in workflows for transitions which point to an activity. From FirstSpirit version 5.2R3 onward, this definition is now also prevented in the GUI for transitions which point to a status. Further information can be found in chapter "SiteArchitect: 'Group exclusion' function for transitions in workflows".	Developer, Permissions, SiteArchitect, Workflow	5.2R3
CORE-299	In ContentCreator, adding new media to a folder could lead to erroneous behavior if the project's master language was not configured to be used as an editorial language.	ContentCreator, Media Store	5.2R5
CORE-300	Optimized scrolling and loading of entries in reports (data access plug-ins).	Reports, SiteArchitect	5.2R3
CORE-301	Reloading the entries in the selection dialog in the FS_INDEX input component has been optimized.	Input Components, SiteArchitect	5.2R3
CORE-305	Optimized output of nested input component FS_INDEX in snippets.	Corporate Content, Input Components, SiteArchitect, Template Development	5.2R3
CORE-316	Starting a workflow on a dataset could cause the dataset to lose focus.	Content Store, Workflow	5.2R3
CORE-317	Creating a new dataset by copying data from an existing dataset could lead to erroneous behavior if the form contained the input component CMS_INPUT_DOM.	Content Store, ContentCreator, Input Components	5.2R2
CORE-325	When executing the method `delete(IDProvider, boolean)` (FirstSpirit Access API, package `de.espirit.firstspirit.access`, class `AccessUtil`) on a dataset, the data source was deleted erroneously. Now, an error message is generated which states that a dataset cannot be deleted using the method above.	Content Store, Developer	5.2R3
CORE-326	When importing media using "Template Wizard" functionality, the option "Parse file" will now only be activated for files of types "css" and "js".	Media Store, Template Wizard	5.2R3

ID	Description	Categories	Version
CORE-328	Optimizations related to TLS encryption.	Security	5.2R3
CORE-331	Optimized consideration of edit mode when moving sections.	SiteArchitect	5.2R18
CORE-336	In rules, improved evaluation of the property `FOCUS` when using the input components CMS_INPUT_TOGGLE (`type=radio`) and CMS_INPUT_RADIOBUTTON.	Dynamic Forms, Input Components	2018-11
CORE-339	Optimized indexing of datasets when using external data sources.	Indexing	2018-07
CORE-342	In the case of older Mac OS X versions (e.g., 10.7), the internal check of the operating system version in SiteArchitect may have resulted in a malfunction.	SiteArchitect	5.2R3
CORE-345	Optimized validation hints in forms of inner entries of the input component FS_CATALOG.	Dynamic Forms, Input Components, SiteArchitect	5.2R2
CORE-346	In the input component FS_CATALOG, clicking the button "New" (and selecting the desired template, if necessary) now opens the form associated with the new entry so that the editor may directly input the desired content. Further information can be found in chapter "ContentCreator: FS_CATALOG: New Entry Form Is Opened Immediately".	ContentCreator, Editor, Input Components	5.2R19
CORE-347	For the input component FS_CATALOG, the behavior when creating a new entry and then canceling editing without saving changes has been optimized.	Input Components, SiteArchitect	5.2R3
CORE-348	Creation of duplicate log directories will now be prevented.	FirstSpirit Administrator	5.2R3
CORE-353	Optimized editing of contents of the input component CMS_INPUT_DOM within FS_LIST using InEdit functionality.	ContentCreator	5.2R19
CORE-355	The search performance in customer-specific reports ("ReportPlugin") has been optimized.	ContentCreator, Reports	5.2R3

ID	Description	Categories	Version
CORE-359	In the "Edit image section" dialog in ContentCreator, rotating or flipping an image section were erroneously not recognized as changes.	ContentCreator, Media Store	5.2R5
CORE-365	Restoring a deleted dataset with the input component FS_LIST (DATABASE type) may have failed with an error message.	Input Components, SiteArchitect	5.2R4
CORE-367	Optimized display of the bookmark drop-down list which is accessible via the bookmark button in the horizontal toolbar of SiteArchitect.	Bookmarks, SiteArchitect	5.2R3
CORE-384	In the "Extras" menu item, evaluation of the "Show preview errors" setting has been improved.	Preview, SiteArchitect	5.2R5
CORE-404	In a data source, an already released dataset was erroneously displayed as not released after starting a workflow.	Content Store, SiteArchitect, Workflow	5.2R2
CORE-414	In rare cases some selection dialogues were rendered incorrectly.	SiteArchitect	5.2R19
CORE-417	The page status display, reached via the ContentCreator toolbar, erroneously displayed the most recent editor and the most recent release date of the page reference, not of the page element.	ContentCreator	5.2R5
CORE-423	Drag-and-drop of a medium from the Media Store into the local filesystem could lead to erroneous behavior. The launcher has to be updated in order to apply this fix.	Launcher, SiteArchitect	5.2R9
CORE-424	Under certain conditions, errors could occur when using the search for ID in the status row of the data source overview.	Content Store, Search, SiteArchitect	2018-07

ID	Description	Categories	Version
CORE-426	In SiteArchitect, the selection dialog offers navigation and search functionality which enable quick location of objects which are to be referenced, e.g. images or files from the Media store or page references from the Site Structure store (e.g. input components FS_REFERENCE, FS_LIST, FS_DATASET). In FirstSpirit version 5.2R5, the search interaction pattern in this dialog has been optimized. Further information can be found in chapter "SiteArchitect: Optimization of selection dialog".	Editor, Search, SiteArchitect	5.2R5
CORE-427	Support for section templates with long names has been improved.	ContentCreator	2018-07
CORE-429 CORE-9178 CORE-9179	For the "FirstSpirit Template Wizard", "FirstSpirit Template Debugger", and "FirstSpirit Template Inspection", permissions can now be granted so that these tools can now only be accessed by certain user groups. Further information can be found in chapter "Administration: Permissions for FirstSpirit modules (Template Wizard, Template Debugger, Template Inspection)".	Developer, FirstSpirit Administrator, Permissions, ServerManager, SiteArchitect, Template Debugger, Template Wizard	5.2R2
CORE-430	In very rare cases, erroneous behavior could occur during project export.	Project export / import	5.2R4
CORE-432	In the input component FS_LIST (type INLINE), optimized editing an entry in a separate window.	Input Components, SiteArchitect	5.2R6
CORE-439	The validation behavior for the input component FS_LIST (type DATABASE) operating in "Mediamode" has been optimized.	ContentCreator, Dynamic Forms	5.2R6
CORE-443	When renaming a project with an existing remote connection, the remote configuration can now be adjusted automatically. Further information can be found in chapter "Administration: Renaming Projects With Remote Connection".	FirstSpirit Administrator, Modules, Remote access, ServerManager	2018-09
CORE-445	The assignment of feature names has been optimized.	Content Transport	2018-08

ID	Description	Categories	Version
CORE-446	Editing a restored section may have resulted in a malfunction.	ContentCreator	5.2R3
CORE-449	When adding folders to the Media store using drag-and-drop, the folders' display names will now automatically be set.	Media Store, SiteArchitect	5.2R4
CORE-455	Under certain conditions (a node has been moved and modified at the same time in the source project), nodes were not updated correctly in the target project.	Content Transport, SiteArchitect	5.2R3
CORE-461	Restoring revisions resulted in a malfunction on pages if the child list had been changed by means of a previous restoration process.	Page Store, SiteArchitect	5.2R3
CORE-463	Improved visualization of changes in version comparison.	SiteArchitect, Version history	5.2R7
CORE-466	Optimized performance when adding elements to CorporateContent packages.	Corporate Content, FirstSpirit Administrator, ServerManager	5.2R3
CORE-467	Resource limit settings (*ulimit*) now remain unchanged when the FirstSpirit server is started.	FirstSpirit Administrator	5.2R4
CORE-468	Dynamic forms now allow canceling of rules evaluation related to complex, long-running rulesets.	Dynamic Forms, SiteArchitect	5.2R2
CORE-476	The global search functionality supports drag and drop of input components onto the search field. For an FS_DATASET input component referencing a certain dataset, search results now include elements which also reference that dataset.	Input Components, Search, SiteArchitect	5.2R3
CORE-484	The process of updating the preview has been improved.	ContentCreator, Preview	5.2R3
CORE-487 CORE-1700	In the input component CMS_INPUT_COMBOBOX, input of custom values (parameter `editable="yes"`) could lead to erroneous behavior.	Input Components	5.2R4

ID	Description	Categories	Version
CORE-490	The way encrypted/protected PDF files are handled has been improved.	Indexing, Search, Security	5.2R3
CORE-493	The response time when editing images in projects with many image resolutions has been improved.	Media Store, SiteArchitect	5.2R3
CORE-494	In the input component FS_LIST (DATABASE type), the referenced dataset was erroneously marked as changed when an entry was added.	Input Components, SiteArchitect	5.2R3
CORE-497	Erroneous behavior could occur during execution of workflow scripts.	ContentCreator, Workflow	5.2R3
CORE-500	Simplified creation of new entries in FS_CATALOG in SiteArchitect. Further information can be found in chapter "SiteArchitect: Simplified Creation of Entries in FS_CATALOG".	Editor, Input Components	5.2R4
CORE-513	In ContentCreator, the height of the input component "Link-Sensitive Graphic" (CMS_INPUT_IMAGEMAP) can now be adjusted. Further information can be found in chapter "ContentCreator: Stepless Resizing of the Input Component "Link-Sensitive Graphic" (CMS_INPUT_IMAGEMAP)".	ContentCreator, Editor, Input Components	5.2R3
CORE-514	Using a schema generated from an Oracle database could result in incorrect queries.	Database	2018-07
CORE-515	Optimized behavior when releasing a node which has been restored.	SiteArchitect, Workflow	5.2R3
CORE-520	With newly-created API means, it is now possible to modify `FeatureDescriptor` objects stored server-side and to save them again. Further information can be found in chapter "Module Development, Scripts, API: Modifying FeatureDescriptor objects stored server-side via API".	Content Transport, FirstSpirit API	5.2R12

ID	Description	Categories	Version
CORE-521	In rare cases, searching for datasets in projects which use project archiving may have resulted in an error.	Archiving, FirstSpirit Administrator, Search	5.2R3
CORE-525	In templates, optimized display of editable tables in the "Properties" tab (e.g., page templates / tab "Properties" / tab "General" / table "File extension").	SiteArchitect, Template Development, Template Store	5.2R3
CORE-541	From FirstSpirit version 5.2R3 onward, individual web app components can now also be added to global web apps (BETA!). Further information can be found in chapter "Module Development, Scripts, API: Individualizing the global FirstSpirit web applications (BETA!)".	Developer, Module development, ServerManager	5.2R3
CORE-542	When creating a new page, the option "Hide in selection list" for the page template used was erroneously not taken into account.	ContentCreator, Template Store	5.2R3
CORE-543	Optimized thumbnail display during search in the selection dialog of the input component FS_INDEX.	Input Components, SiteArchitect	5.2R4
CORE-549 CORE-939 CORE-2053	In FirstSpirit version 5.2R4, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Database, Integrated software, Launcher, Security, Server Administrator	5.2R4
CORE-557	The interface `MediaManagementContext` in the package `de.espirit.firstspirit.webedit.plugin.media` (FirstSpirit Developer API) has been extended with new methods. Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Modify view of the dialog "Manage media" (de.espirit.firstspirit.webedit.plugin.media)".	ContentCreator, Developer, FirstSpirit API, Media Store	5.2R7

ID	Description	Categories	Version
CORE-562	Improved stability of project repository conversion.	Database, FirstSpirit Administrator, ServerManager	5.2R4
CORE-563	Saving of store elements and datasets can now be triggered programmatically via the API using the new interface `SaveOperation` (package `de.espirit.firstspirit.store.operations`, FirstSpirit Access API). Further information can be found in chapter "Module Development, Scripts, API: Saving Elements".	Developer, FirstSpirit API	5.2R18
CORE-577	Canceling a workflow in ContentCreator immediately after starting it could lead to erroneous behavior.	ContentCreator, Workflow	5.2R3
CORE-583	Improved interaction pattern related to translation help functionality. The button "Adopt contents" will now only be shown for language-dependent input components. (Language-neutral components only have one content value each which is the same for every language.) Further information can be found in chapter "SiteArchitect: Translation help: improved interaction when adopting contents".	Input Components, SiteArchitect	2018-09
CORE-585	Improved the process of populating an FS_REFERENCE input component via drag and drop using a medium from the FirstSpirit clipboard.	Clipboard, Input Components, SiteArchitect	5.2R4
CORE-598 CORE-598	In the language-independent input components FS_CATALOG and FS_LIST (INLINE type), the input components of sections are now highlighted again when checking for TRANSLATED within a rule ("dynamic forms" functionality).	ContentCreator, Dynamic Forms, Input Components	5.2R3
CORE-608	In rare cases, the parameter `wrapper.pidfile`, set in the configuration file "fs-wrapper.conf", was not considered in Linux environments.	Server Administrator	5.2R4

ID	Description	Categories	Version
CORE-609	In the input component FS_REFERENCE with a filter for data sources (`<FILTER>` tag with the element type `CONTENT2`), opening the selection dialog could lead to erroneous behavior.	Input Components, SiteArchitect	5.2R3
CORE-612	Weighting of content in search results may be specified per input component using the parameter `searchRelevancy`. Further information can be found in chapter "Search: Weighting of Contents in Input Components".	ContentCreator, Developer, Indexing, Input Components, Search, SiteArchitect, Table templates, Template Development, Template Store	5.2R3
CORE-624	Added an icon for refreshing package display. Further information can be found in chapter "Modules: Corporate Content: Refresh package display".	Corporate Content	5.2R4
CORE-630	Optimized interaction pattern when restoring a dataset which referenced other datasets.	Content Store, SiteArchitect	2018-11
CORE-634	Improved indexing of files with file name extensions "html", "json", and "php".	Indexing, Search	5.2R4
CORE-636	Erroneous behavior could arise when using language-dependent images in the input component CMS_INPUT_IMAGEMAP within metadata.	Input Components	2018-10
CORE-646	Optimized clean-up of technical sessions which were established via remote projects.	Server Administrator	5.2R3
CORE-647	The new interface `DeleteOperation` in the package `de.espirit.firstspirit.store.operations` (FirstSpirit Developer API) may be used to carry out server-side deletion of FirstSpirit elements and datasets. Further information can be found in chapter "Module Development, Scripts, API: Deleting Elements".	Developer, FirstSpirit API	5.2R18

ID	Description	Categories	Version
CORE-651	In FirstSpirit version 5.2R2 and higher, proxy authentication based on Kerberos/SPNEGO or NTLM is supported through HTTP. Further information can be found in chapter "Administration: Proxy authentication via Kerberos/SPNEGO or NTLM".	FirstSpirit Administrator, Security	5.2R2
CORE-658	Concurrent editing of a dataset by multiple users / in multiple clients could lead to erroneous behavior.	Content Store, SiteArchitect	5.2R3
CORE-660	Performance improvements in the area SiteArchitect / ServerManager.	ServerManager, SiteArchitect	5.2R2
CORE-668	For page references, optimized display of changes in the version history.	SiteArchitect, Version history	5.2R5
CORE-669	In the input component FS_INDEX, the creation of a new dataset has been improved.	Input Components	5.2R20
CORE-670	Deleting a dataset which contains a reference to itself could lead to erroneous behavior.	Content Store, SiteArchitect	5.2R3
CORE-681	Optimized the user interface of the details view of the input component FS_INDEX: the tabs in the details view will now be reused and visualize an active edit mode. Further information can be found in chapter "SiteArchitect: FS_INDEX: Reuse of tabs in the details view".	SiteArchitect	5.2R5
CORE-682	In rare cases, modifications were not handled properly in nested FS_LIST input components (type DATABASE).	Input Components, SiteArchitect	5.2R3
CORE-683	Updated the integrated Chrome browser engine "JxBrowser" to version 4.9.5. Further information can be found in chapter "System: Integrated Software".	Preview, SiteArchitect	5.2R3
CORE-686	Exporting a database schema including its current data could lead to erroneous behavior.	Content Store, SiteArchitect, Template Store	5.2R3

ID	Description	Categories	Version
CORE-687	When transporting project properties via external synchronization (using the API), updates were occasionally not recognized.	Developer, External synchronization, FirstSpirit API	5.2R3
CORE-688	Recalculation of references is now supported for individual elements using the new API object `ProjectReferencesAgent`. Further information can be found in chapter "Module Development, Scripts, API: Recalculation of references for individual elements via ProjectReferencesAgent".	Developer, FirstSpirit API	5.2R3
CORE-689	In rare cases, selecting a remote object may have resulted in a malfunction.	ContentCreator, Input Components	5.2R3
CORE-692 CORE-794	Performing edits in image galleries (input component FS_LIST, type DATABASE with the tag `<MEDIAMODE>`) could lead to erroneous behavior.	ContentCreator, Input Components	5.2R3
CORE-696	In the case of the input component FS_CATALOG, the revalidation process when modifying the options "Include this section in the output" (property INCLUDED) or "Page is completely translated to this language" (property TRANSLATED) in subforms has been optimized.	Dynamic Forms, Input Components, SiteArchitect	5.2R3
CORE-697	In the case of the input components FS_CATALOG, FS_LIST (INLINE type), and CMS_INPUT_IMAGEMAP, the revalidation process when modifying the options "Display or hide section" (property INCLUDED) or "Page is completely translated to this language" (property TRANSLATED) in subforms has been optimized.	ContentCreator, Dynamic Forms, Input Components	5.2R3
CORE-703	FirstSpirit version 5.2R3 enables sending e-mails via SMTP using authenticated connections. Authentication is configured in the configuration file `fs-server.conf`. Further information can be found in chapter "Administration: SMTP Authentication".	FirstSpirit Administrator, Security, ServerManager	5.2R3

ID	Description	Categories	Version
CORE-712	The "Merge" functionality in some tabs of the "Version comparison" dialog is now no longer available or only available with appropriate user privileges. Further information can be found in chapter "SiteArchitect: Selection of revisions for merge".	Developer, SiteArchitect, Template Development, Version history	5.2R4
CORE-718	The filter and sorting functionality for datasets has been extended in SiteArchitect. Not released datasets in the tab "Current datasets" and deleted datasets in the tab "Released datasets" can now be identified more quickly. Further information can be found in chapter "SiteArchitect: Extended Filter and Sorting Functionality for Datasets".	Content Store, Editor, SiteArchitect, Table templates	5.2R3
CORE-719	The newly-introduced parameter `preview.externalDeliveryForwardHttpHeaders` (`fs-server.conf`) defines if, and which, HTTP header fields will be forwarded to the external web server, which is speficied by the parameter `preview.externalDeliveryURL`. Further information can be found in chapter "Administration: Forwarding of HTTP Header Information to an External Preview URL".	FirstSpirit Administrator, ServerManager	5.2R3
CORE-739	In certain cases, the output of CMS_INPUT_PERMISSION values in templates may have resulted in a malfunction.	Input Components, SiteArchitect	5.2R3
CORE-742	Package `de.espirit.firstspirit.ui.gadgets.swing` (FirstSpirit Developer-API) extended by the class `SwingFormViewMode`. Further information can be found in chapter "Module Development, Scripts, API: SwingGadget Development: New Class "SwingFormViewMode"".	Developer, FirstSpirit API, Input Components, Module development, SiteArchitect	5.2R9
CORE-743	Deleting a new dataset which had never been saved may have resulted in a malfunction.	Content Store, SiteArchitect	5.2R3

ID	Description	Categories	Version
CORE-753	Media restrictions: Improved identification of file format of media uploaded via drag-and-drop. Further information can be found in chapter "Media: Optimized identification of file format of media uploaded via drag-and-drop".	ContentCreator, Developer, Editor, Media Store, ServerManager, SiteArchitect	5.2R4
CORE-760	Using the new method `stopMaintenance` (FirstSpirit Access API, Package `de.espirit.firstspirit.access`, Interface `AdminService`), maintenance mode may be cancelled via the API. Further information can be found in chapter "Module Development, Scripts, API: New Method for Cancelling Maintenance Mode".	FirstSpirit API, FirstSpirit Administrator	5.2R3
CORE-767	Improved search in log files in ServerMonitoring.	Search, ServerMonitoring	5.2R5
CORE-768	FirstSpirit-Version 5.2R3 includes a bugfix which provides extensive protection against a Java vulnerability in connection with serialization/deserialization. Further information can be found in chapter "Security: Java Vulnerability (Serialization/Deserialization)".	FirstSpirit Administrator, Module development, Modules, Security	5.2R3
CORE-773	Optimized display of recently used objects from remote projects for input components that use selection dialogs for selection of references (FS_REFERENCE, CMS_INPUT_IMAGEMAP, links...).	SiteArchitect	5.2R8
CORE-778	In translation help, improved adoption of content within entries of FS_CATALOG input components.	Input Components, SiteArchitect	5.2R4
CORE-780	Longer periods of inactivity could lead to erroneous behavior when requesting the FirstSpirit start page.	Webstart	5.2R5
CORE-802	In very rare cases, when using server-side release after move operations, already released objects could not be found.	Release	5.2R4

ID	Description	Categories	Version
CORE-807	Starting a FirstSpirit server could lead to erroneous behavior if the user's home directory could not be written to.	FirstSpirit Administrator	5.2R3
CORE-811	If a web server has been configured incorrectly, the installation of a web application on the server is now prevented.	FirstSpirit Administrator, ServerManager	5.2R3
CORE-824	When using the module "FirstSpirit Security", the FirstSpirit Access Control Database was not created correctly in the web application directory when deploying the WAR file on an external web server (e.g., Tomcat 7).	Developer, FirstSpirit Administrator, Modules	5.2R3
CORE-825	During creation of a new package version, erroneous behavior could occur.	Corporate Content	5.2R6
CORE-826	When using an IBM DB2 database, modifying foreign key relationships could lead to erroneous behavior.	Content Store, Database	5.2R3
CORE-830	If certain prerequisites were met, erroneous behavior could occur when creating a table template after integrating an external database.	Database, Table templates	5.2R4
CORE-833	Improvements in the area Template Wizard.	Template Wizard	5.2R4
CORE-835	Improved output of input component FS_INDEX in metadata.	Corporate Content, Input Components, SiteArchitect, Template Development	5.2R3
CORE-842	The storage behavior for archiving system files ("Archive old project states" schedule) has been optimized.	Archiving	5.2R3
CORE-857	In FirstSpirit version 5.2R3, a number of new interfaces and methods for implementing personal schedule actions have been included in the FirstSpirit Developer API. Further information can be found in chapter "Module Development, Scripts, API: New interfaces and methods for implementing personal schedule actions".	Developer, FirstSpirit API, Generation, Tasks	5.2R3

ID	Description	Categories	Version
CORE-865 CORE-876 CORE-883	FirstSpirit version 5.2R3 features several optimizations related to use of the FirstSpirit Launcher. This includes security improvements (use via HTTPS, use of cookies, consideration of permissions). Further information can be found in chapter "Administration: Optimizations related to use of the FirstSpirit Launcher".	FirstSpirit Administrator, Launcher, Security, Server Administrator, Webstart	5.2R3
CORE-885	From the current version of FirstSpirit onwards, the use of language-dependent input components within a language-dependent FS_CATALOG input component will be disallowed by default. Further information can be found in chapter "Input components: FS_CATALOG: Nesting of language-dependent input components".	ContentCreator, Developer, Editor, FirstSpirit API, FirstSpirit Administrator, Input Components, ServerManager, SiteArchitect	5.2R5
CORE-886	Improved performance when saving project settings ("SiteArchitect / Global settings") with large amounts of data.	Global settings	5.2R4
CORE-892	As of the current FirstSpirit version, the software used internally for integrated preview has been updated. Further information can be found in chapter "SiteArchitect: Integrated preview: Updated third-party software".	Integrated software, Preview, SiteArchitect	5.2R7
CORE-897	Changing a dataset using a workflow and a workflow script could lead to erroneous behavior.	Content Store, SiteArchitect, Workflow	5.2R3
CORE-906	The current FirstSpirit version provides MBeans in the JMX console entry "ConnectionPool" which allow visualization and control of database connections. Further information can be found in chapter "Administration: MBeans for visualization and control of database connections ("ConnectionPool")".	Database, FirstSpirit Administrator	5.2R5
CORE-914	Improved search in data sources.	ContentCreator, Search, SiteArchitect	5.2R4

ID	Description	Categories	Version
CORE-915	Improved consideration of access privileges on page templates.	ContentCreator, Permissions	5.2R4
CORE-916	In the input component FS_LIST (type DATABASE), selection of datasets could lead to erroneous behavior if an associated query (tag QUERY) used the wildcard %lang% for language-dependent content for a column.	Content Store, SiteArchitect	5.2R4
CORE-917	Optimized evaluation of a parameter from a page reference that is passed to a database query.	Database	5.2R6
CORE-918	After installation of a feature in a target project, in rare cases, the order of sections within an updated page could be changed.	Content Transport, Page Store	5.2R3
CORE-924	As of the current FirstSpirit version, e-mail addresses with special characters in the domain part ("IDN domains", RFC 3490) may be used, e.g. "info@müller.de". Related to this change, several modifications were made to the FirstSpirit Access API. Further information can be found in chapter "Module Development, Scripts, API: E-mail addresses with special characters in the domain part".	FirstSpirit API, Server Administrator	5.2R6
CORE-944	You can use the method `getModifiedProjectProperties()` of the interface `ImportOperation.Result` (FirstSpirit Developer API, package `de.espirit.firstspirit.store.access.nexport.` which has been introduced with FirstSpirit version 5.2R4, to identify if and which type of project settings were imported (for example template sets). Further information can be found in chapter "External Synchronization: New method "getModifiedProjectProperties" returns imported project properties".	External synchronization	5.2R4

ID	Description	Categories	Version
CORE-945	Deletion of objects in one project will now be correctly regarded during an import into other projects. This also affects "FirstSpirit ContentTransport". Further information can be found in chapter "External Synchronization: Import: Deletion of objects".	Content Transport, External synchronization	5.2R14
CORE-946	When using the functionality "External Synchronization", the preview page of a template was erroneously not considered after import.	External synchronization	5.2R4
CORE-951	Improved handling of folders with identical names in the External Synchronization user interface.	External synchronization, SiteArchitect	5.2R3
CORE-953	In external synchronization, optimized content of the file `Info.txt` for media. This file no longer contains resolution information, which is part of global project properties.	External synchronization	5.2R4
CORE-962	Deprecated the methods `addStartNode(IDProvider)` and `removeStartNode(IDProvider)` in the interface `Package` (FirstSpirit Access API, package `de.espirit.firstspirit.access.packagepool`). These methods may be removed from the Access API with the next major FirstSpirit version (6.0). Nodes may be added to and removed from a "Package" object (supplied as a parameter) by using the methods `addToPackage(Package)` and `removeFromPackage(Package)`, respectively, of the interface `PackagePoolItem` (FirstSpirit Access API, package `de.espirit.firstspirit.access.store`). All objects which may be added to a Corporate Content package implement this interface.	Corporate Content, Developer, FirstSpirit API	5.2R3

ID	Description	Categories	Version
CORE-965	In ContentCreator forms, depending on the browser, display of an input component which references a data source that contains many datasets may be slow. As of FirstSpirit 5.2R4, the display is thus limited to 100 entries. Further information can be found in chapter "ContentCreator: Improved performance when displaying datasets in input components".	Content Store, ContentCreator, Developer, Editor, Input Components, Template Development	5.2R4
CORE-970 CORE-1813	Improved import behavior in External Synchronization used via API.	External synchronization	5.2R4
CORE-981	Pressing Ctrl and hovering the mouse cursor over template code now visualizes referenced FirstSpirit elements while Ctrl + KLICK jumps to the referenced element. Further information can be found in chapter "SiteArchitect: Jumping to References in Template Code".	Developer, Template Development, Template Store	5.2R9
CORE-982	Some optimizations have been made to the "Form" and "Rules" tabs for the purpose of code completion in the latest FirstSpirit version. Further information can be found in chapter "SiteArchitect: Code completion optimizations".	Developer, Dynamic Forms, SiteArchitect, Template Development, Template Store	5.2R7
CORE-994	Improved thumbnail display for media in Media store folders.	Media Store, SiteArchitect	5.2R5
CORE-996 CORE-3520	Improved refreshing the preview after making changes in subforms.	ContentCreator	5.2R6
CORE-999	When clicking on an unfiltered data source the internal preview erroneously was not updated.	SiteArchitect	2018-07
CORE-1008	Improved user interface when creating multiple thread dumps (menu entry "FirstSpirit / Monitoring / Threads") in FirstSpirit ServerMonitoring.	ServerMonitoring	5.2R3
CORE-1015	In external synchronization, media were erroneously not updated during import.	External synchronization	5.2R4

ID	Description	Categories	Version
CORE-1020	Corrected standard release workflow.	Workflow	5.2R4
CORE-1021	Security improvements related to server-side script execution.	Security, Server Administrator	2018-09
CORE-1024	Editing referenced datasets in nested FS_LIST (type DATABASE) input components could lead to erroneous behavior.	Input Components, SiteArchitect	5.2R4
CORE-1054	The selection dialog (for example at FS_REFERENCE and FS_DATASET) has got a new icon. This can be used for opening the selected object in a new workspace. Additionally, the position of opening working spaces has been optimized. Further information can be found in chapter "SiteArchitect: Revised selection dialog and opening new workspaces".	Editor, SiteArchitect	5.2R4
CORE-1075	Erroneous behavior could occur during start-up of web applications if Websphere was used as an application server.	FirstSpirit Administrator	5.2R6
CORE-1081	Optimized selection dialog of the input component FS_LIST (type DATABASE).	Input Components, SiteArchitect	5.2R4
CORE-1082	The newly created API functionality `SnippetAgent` (package `de.espirit.firstspirit.access.store.templates` FirstSpirit Access API) allows now getting a context-related access to the snippet evaluation of a FirstSpirit element. Further information can be found in chapter "Module Development, Scripts, API: SnippetAgent: API access to snippet evaluation".	Developer, FirstSpirit API, Snippets, Template Development	2018-07

ID	Description	Categories	Version
CORE-1084	FirstSpirit now supports upload, saving, and deployment of media which contain more than one dot in their file names, e.g. files of type ".tar.gz" or files which carry version information in their names such as "Linux_4.6.4-1.debian.tar.xz". Further information can be found in chapter "Media: Support for files with more than one dot character in their names".	ContentCreator, Editor, Input Components, Media Store, Search, SiteArchitect	5.2R5
CORE-1093	As of FirstSpirit version 5.2R5, source code packages are available that contain example modules for integration of external data sources in FirstSpirit using generic DataAccessPlugins. Further information can be found in chapter "Module Development, Scripts, API: Examples for integration of external data sources using generic DataAccessPlugins".	Developer, FirstSpirit API, Module development	5.2R5
CORE-1103	In the input component CMS_INPUT_RADIOBUTTON, the set of available options may be limited by using a rule. Erroneous behavior could occur if the current value of such an input component was not available in the current set of available options.	Dynamic Forms, Input Components, SiteArchitect	5.2R5
CORE-1108	The import logging contextual information are enhanced and should be more meaningful if the project export does contain erroneous metadata.	FirstSpirit Administrator, Project export / import	5.2R4
CORE-1110	Project exports were erroneously not considered during clean-up of the backup directory.	Backup	5.2R7
CORE-1112	Improved editing of multiple packages. Further information can be found in chapter "Modules: Corporate Content: Editing multiple packages".	Corporate Content, Developer, Modules, SiteArchitect	5.2R4
CORE-1121	Optimized search.	ContentCreator, Search	5.2R4

ID	Description	Categories	Version
CORE-1122	Optimized generation of preview URL using the method `getPreviewUrl(Language, TemplateSet, boolean, int, Map<?,?>)` of the interface `Previewable` (FirstSpirit Access API, package `de.espirit.firstspirit.access.store`).	ContentCreator, FirstSpirit API	5.2R3
CORE-1125	Input components may be used in multiple contexts: in sections, list components such as FS_CATALOG, datasets, and pages. As of the current FirstSpirit version, the property `CONTAINERTYPE` allows identification of the object type. Depending on the surrounding object type, the input component may, for example, be shown or hidden (or set to be read-only). Further information can be found in chapter "SiteArchitect / ContentCreator: Dynamic forms: New property "CONTAINERTYPE"".	Developer, Dynamic Forms	5.2R6
CORE-1126	Evaluating the release state of a dataset has been optimized for the detailed view display.	Content Store, SiteArchitect	5.2R6
CORE-1128	Toggling the options "Page is completely translated for this language" and "Generate this section in the output" on and off for pages and sections, respectively, now uses simplified keyboard controls. Further information can be found in chapter "SiteArchitect: Optimized keyboard control for consideration of pages and sections in generation".	Editor, Generation, Page Store, SiteArchitect	5.2R4
CORE-1147	Optimized positioning of the pop-up selection dialog for input components FS_LIST (type DATABASE) that use a query (tag `QUERY`).	Input Components, SiteArchitect	5.2R4
CORE-1167	As of FirstSpirit version 5.2, Oracle JDK 1.6 has been removed from maintenance. The file *FIRSTspirit.jnlp* has been adjusted accordingly.	Server Administrator, Webstart	5.2R3
CORE-1169	In external synchronization (used via API), occasionally, not all objects in a folder structure were properly included in an export into the external file system.	External synchronization	5.2R4

ID	Description	Categories	Version
CORE-1203	In ContentCreator, programmatic redirects could erroneously no longer be implemented.	ContentCreator	5.2R4
CORE-1211 CORE-1198 CORE-3454	Handling of reports has been improved. Further information can be found in chapter "SiteArchitect / ContentCreator: Reports: Handling has been improved".	ContentCreator, Editor, Reports, SiteArchitect	5.2R6
CORE-1218	In the current version of FirstSpirit, the version of the Apache FOP used internally was updated from 1.1 to 2.2. Further information can be found in chapter "System: Updating Apache FOP".	Integrated software	5.2R14
CORE-1220	During use of ContentCreator, a problem related to the user session could arise.	ContentCreator	5.2R4
CORE-1254 CORE-1444	You can now perform web-based updates of your FirstSpirit server/s by simply selecting the desired FirstSpirit version in ServerMonitoring. Further information can be found in chapter "Administration: Server updates using "pull" method".	FirstSpirit Administrator, License, Server Administrator, ServerMonitoring	5.2R5
CORE-1256 CORE-1343	During use of FirstSpirit ContentCreator, increased file handle usage could occur.	ContentCreator, FirstSpirit Administrator	5.2R4
CORE-1262	Creating a query may have failed after creating a database schema from an external Oracle database with a BLOB column.	Database	5.2R7
CORE-1263	In rare cases, display issues with the Difference icon in modified areas could occur in the Difference view (page status, "Display all changes").	ContentCreator, Version history	5.2R4
CORE-1267	In the external synchronization user interface, improved status display for objects that will be imported.	External synchronization	5.2R4
CORE-1269	Optimized search in data sources.	Content Store, Search, SiteArchitect	5.2R3

ID	Description	Categories	Version
CORE-1273	Due to different handling of Berkeley DB V5 ("FirstSpirit ServerManager / Project Properties / Repository / Backend") in FirstSpirit versions 5.1 and 5.2, the repository of each project must first be configured to use Berkeley DB V3 before a downgrade from FirstSpirit version 5.2 to version 5.1 can be conducted. Further information can be found in chapter "Compatibility: Downgrade to FirstSpirit 5.1 when using Berkeley DB V5".	FirstSpirit Administrator, ServerManager	5.2R3
CORE-1276 CORE-1447	In order to support the new FirstSpirit Health Center functionality, the protocol for FirstSpirit web applications was modified and is now incompatible to that of previous versions. As in any upgrade and downgrade procedure, it is necessary to ensure that the FirstSpirit web applications are compatible with the FirstSpirit server software's version. Further information can be found in chapter "Administration: Modified protocol for FirstSpirit web applications".	FirstSpirit Administrator, Module development, ServerManager	5.2R4
CORE-1282	Optimized selection of the "Next editor" of a workflow in ContentCreator (using the magnifying glass or "Show more entries..."). Further information can be found in chapter "ContentCreator: Selection dialog for next editor(s) of a workflow".	ContentCreator, Editor, Workflow	5.2R4
CORE-1290	Dynamic forms in combination with preset and fallback values: The (partial) prepopulation of form fields with preset and fallback values via the dialog "Edit form defaults" in the Templates store is now possible again. Rule violations which would normally prevent saving a form (e.g. because a mandatory field in the form is empty) will be shown in the dialog "Edit form defaults" but will no longer prevent saving the form in this dialog.	Developer, Dynamic Forms, Input Components, SiteArchitect, Template Development, Template Store	5.2R4
CORE-1291	Erroneous behavior could occur during feature installation if the database schema in the target project contained more attributes than that in the source project.	Content Transport	5.2R4

ID	Description	Categories	Version
CORE-1293	Saving the inner form of an FS_DATASET input component could lead to erroneous behavior.	Content Store, Input Components, SiteArchitect	5.2R4
CORE-1299	Optimized interaction pattern when installing or creating a feature.	Content Transport	5.2R6
CORE-1310	In rare cases, switching among tabs in the editorial workspace could lead to erroneous behavior.	SiteArchitect	5.2R12
CORE-1320	When starting workflows via the status bar or the context menu, the available workflows will now be sorted using the same ordering.	SiteArchitect, Workflow	5.2R5
CORE-1325	The function "Show usages" on an element could lead to errors when the referenced objects came from a remote project and the user had no rights in that project.	Permissions, SiteArchitect	5.2R4
CORE-1327	In the project properties of FirstSpirit ServerManager, a setting is now available that defines if selection from remote projects should be limited to objects which have been released at least once. Further information can be found in chapter "Modules: Corporate Media: Limiting selections from remote projects to objects with a release state".	ContentCreator, Corporate Content, FirstSpirit Administrator, Page Store, ServerManager, SiteArchitect	5.2R4
CORE-1336	Optimized message board for display of long messages.	SiteArchitect	5.2R4
CORE-1339	When starting SiteArchitect using a URL without a domain, the cookies listed in the parameter "clientCookieNames" were erroneously not considered by the integrated Chrome browser.	Preview, SiteArchitect	5.2R4
CORE-1346	After deinstallation of the FOP module, the presentation channel was erroneously deleted on the server.	Modules, ServerManager	5.2R4
CORE-1370	Improved performance when using FirstSpirit in HTTP connection mode.	ServerManager, SiteArchitect	5.2R4
CORE-1381	Populating the input component CMS_INPUT_TEXT via drag-and-drop from the input component CMS_INPUT_DOM has been improved.	Input Components, SiteArchitect	5.2R10

ID	Description	Categories	Version
CORE-1383 CORE-2637 CORE-2671 CORE-2694 CORE-2756	Extended interaction pattern of FS_INDEX with drag-and-drop functionality: FS_INDEX can now be selected as a drop editor in section, link, and table templates. Furthermore, users may now add and replace entries of compatible data types (e.g. from a report) to/in index components in forms using drag-and-drop. Further information can be found in chapter "Input components: FS_INDEX: Editorial functionality using drag-and-drop".	ContentCreator, Developer, Editor, Input Components, SiteArchitect, Template Development	5.2R5
CORE-1389	An active server backup mode didn't respect the project registries.	Backup, FirstSpirit Administrator	5.2R4
CORE-1394	Optimized positioning of pop-up dialogs displayed via scripts.	SiteArchitect	5.2R4
CORE-1396	Workflows on media and media folder elements can now be advanced in the report area under "Tasks". Further information can be found in chapter "ContentCreator: Workflows on media and media folder elements".	ContentCreator, Media Store, Workflow	5.2R7
CORE-1402	When adopting changes via translation help, erroneous behavior could occur.	SiteArchitect	5.2R4
CORE-1403	The most recently selected dataset was not marked when switching from the brief overview to the overview of a data source.	SiteArchitect	2018-06
CORE-1418	Optimized detection of modifications in the input component CMS_INPUT_PERMISSION.	Input Components	5.2R4
CORE-1419	Optimized calculation of privileges when editing metadata in ContentCreator.	ContentCreator, Permissions	5.2R4
CORE-1421	Improved display behavior of the dialog "Manage media" in ContentCreator (menu entry "Media / Manage media") after deleting an empty folder.	ContentCreator, Media Store	5.2R4

ID	Description	Categories	Version
CORE-1422	In the Media store, the action "Delete" was erroneously available on a media element which was already in a workflow.	ContentCreator, Media Store, Workflow	5.2R4
CORE-1425	In rare cases, erroneous behavior could occur in the preview.	ContentCreator, Preview, SiteArchitect	5.2R5
CORE-1440	Due to optimizations of distribution mechanisms, the global web applications included in FirstSpirit (fs5root, fs5preview, fs5webedit, …) are now provided as FirstSpirit modules (FSM files). Further information can be found in chapter "Modules (general): Distribution of FirstSpirit web applications as modules (.fsm)".	FirstSpirit Administrator, Modules, Server Administrator, ServerManager	5.2R4
CORE-1441	Performance improvements in the Media store related to managing folders which contain many Media elements.	Media Store, SiteArchitect	5.2R4
CORE-1444 CORE-1243 CORE-1250 CORE-1596 CORE-2332	There is a new start page in FirstSpirit ServerMonitoring. This page visualizes clearly the hardware and software status of your local FirstSpirit Server as well as of all FirstSpirit Servers which can be reached on the network. Further information can be found in chapter "Administration: The new FirstSpirit Health Center".	FirstSpirit Administrator, License, ServerMonitoring, Sessions, Webstart	5.2R4
CORE-1452 CORE-2561	In FirstSpirit SiteArchitect, the context menus for store tree items as well as some buttons in the horizontal toolbar have been modified. Further information can be found in chapter "SiteArchitect: Context menu functionality and horizontal toolbar".	Developer, Editor, SiteArchitect	5.2R5
CORE-1453	Improved propagation of rule infractions in the input component FS_LIST (type PAGE).	Dynamic Forms, Input Components	5.2R5

ID	Description	Categories	Version
CORE-1458	Allowed section templates are now only "optionally" required during an import process. Further information can be found in chapter "Modules: Corporate Content: Allowed section templates are now only "optionally" required during an import process".	Content Transport	5.2R13
CORE-1460	During publication using FTP via a proxy server, erroneous behavior could occur.	FirstSpirit Administrator	5.2R4
CORE-1463	Optimized validation behavior related to language-independent input components.	Dynamic Forms, Input Components, SiteArchitect	5.2R4
CORE-1468	Relating to the input component FS_DATASET, if a filtered data source is used with `selectorMode="list"`, the filter will now be observed in the dataset view in the selection list.	Content Store, Editor, Input Components	5.2R5
CORE-1476	The "Open in separate window" action of the input component FS_LIST has been optimized.	Input Components, SiteArchitect	5.2R6
CORE-1478	Erroneous behavior could occur in data source overviews when displaying media for which the user did not possess read permissions.	Content Store, SiteArchitect	5.2R6
CORE-1480	Improved evaluation of parameters passed in connection settings when starting the FirstSpirit Launcher.	Launcher	5.2R7
CORE-1483	When exporting elements via External Synchronization using the FirstSpirit Developer API, the new method `setExportRelease(boolean)` in the interface `ExportOperation` (package `de.espirit.firstspirit.store.access.nexport.` can be used to specify whether the release or the current state of selected elements should be exported. Further information can be found in chapter "External Synchronization: New method "setExportRelease" to specify whether the release or the current state of elements should be exported".	External synchronization	5.2R4

ID	Description	Categories	Version
CORE-1484	In ContentCreator, use of the methods `getBrokerByProjectName(String)` and `getBrokerByProjectId(long)` in the interface `BrokerAgent` (Developer API, package `de.espirit.firstspirit.agency`) could lead to erroneous behavior.	ContentCreator, Developer, FirstSpirit API	5.2R4
CORE-1494	In the detailed view of version history, language tabs will now be shown in the same order as on pages in the Page Content store.	SiteArchitect, Version history	5.2R4
CORE-1501	From FirstSpirit version 5.2R4 onward, individual web app components can now also be added to global web apps. Further information can be found in chapter "Module Development, Scripts, API: Individualizing the global FirstSpirit web applications".	Developer, Module development, ServerManager	5.2R4
CORE-1514	After externally editing a medium, display in the integrated preview could lead to erroneous behavior.	Media Store, Preview, SiteArchitect	5.2R4
CORE-1517	Where rule definitions are concerned, error handling of incorrect entries inside the `<SCHEDULE>` tag has been optimized.	Dynamic Forms	5.2R8
CORE-1519 CORE-1674	Improved communication with the preview servlet.	Preview	5.2R4
CORE-1520	When using Oracle databases, using very long column names for N:M foreign key relationships could cause an error.	Database	5.2R5
CORE-1525	When indexing individual datasets via script from within a schedule task using the method `rebuildSearchIndex(IDProvider element)` of the interface ProjectStorage (Access API, package `de.espirit.firstspirit.access.admin`), occasionally, individual datasets were not correctly indexed.	FirstSpirit API, Server Administrator, Tasks	5.2R4
CORE-1537	Corrected version information of the system modules "FirstSpirit ContentCreator" and "FirstSpirit Webapplications".	Modules	5.2R4

ID	Description	Categories	Version
CORE-1539	When using Oracle databases, archiving datasets could cause erroneous behavior.	Archiving	5.2R7
CORE-1541	Improved display of ContentCreator splash screen.	ContentCreator	5.2R4
CORE-1554	The newly-added interface `SelectOptionOperation` (FirstSpirit Developer API) allows developers to use a lightweight dropdown menu for selection of a value within the ContentCreator preview. Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Using dropdown menus via API".	ContentCreator, Developer, FirstSpirit API	5.2R5
CORE-1555	The "Edit image section" dialog in ContentCreator can now be opened via API. Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Opening the "Edit image section" dialog via API".	ContentCreator, Developer, FirstSpirit API	5.2R5
CORE-1578	Improved handling of URL parameters in internal preview.	Preview, SiteArchitect	5.2R4
CORE-1584	Improved performance when selecting a next editor in a workflow dialog.	ContentCreator	5.2R6
CORE-1594	In the functionality "FirstSpirit CorporateContent", optimized update behavior of content in entries of the input component FS_LIST (type INLINE).	Corporate Content	5.2R4
CORE-1615	Improved display of input components within the design element CMS_GROUP.	Input Components, SiteArchitect	5.2R5
CORE-1620	As of the current FirstSpirit version, the URL creation method for remote projects can also be specified in the remote project configuration of the target project. Further information can be found in chapter "Modules: Corporate Media: Specifying URL creation method for remote projects".	Advanced URL, FirstSpirit Administrator, Generation, Modules, Remote access, ServerManager	5.2R10

ID	Description	Categories	Version
CORE-1641	Improved performance of dataset selection via the input component FS_DATASET.	Input Components, SiteArchitect	5.2R4
CORE-1644 CORE-1662	During transport with "External Synchronization" (via API), metadata information (created, updated) will now also be considered.	External synchronization	5.2R4
CORE-1649	Editing media elements in the Media store could lead to erroneous behavior.	Editor, Media Store	5.2R5
CORE-1654	In rare cases the output of normalized content from CMS_INPUT_DOM was incorrect.	Developer	5.2R19
CORE-1655	During exports via external synchronization, elements below the root node will now also be considered so that deleted elements will now also be removed in the external file system.	External synchronization	5.2R4
CORE-1658	Information about elements that need to be deleted will now be considered during transport via "External Synchronization" (using the API).	External synchronization	5.2R4
CORE-1663	Optimized consideration of included project properties during transport using "External Synchronization" (via API).	External synchronization	5.2R4
CORE-1664	Optimized calculation of modified status in external synchronization.	External synchronization	5.2R4
CORE-1665	When using external synchronization via API, root folders ("Root"; e.g. in the Media or Page Content store) were not deleted if they were no longer included in the next export's set of elements.	External synchronization	5.2R4
CORE-1666	In FirstSpirit ServerManager, a web server of type "Generic" could erroneously not be installed in the "Web applications" settings of server or project properties.	ServerManager	5.2R4
CORE-1669	Optimized display of entries of FS_CATALOG input components in the "Translation help" dialog.	ContentCreator	5.2R4

ID	Description	Categories	Version
CORE-1670	Installation of a module with a too large `module.xml` file could lead to erroneous behavior. As of FirstSpirit 5.2R4, an error message such as `Unable to read module descriptor 'XYZ'. Please verify that the file is readable and does not exceed the maximum size of 1048576 bytes.` will be output.	Modules	5.2R4
CORE-1677	Optimized drag-and-drop behavior of data from a report onto an FS_INDEX input component.	ContentCreator, Input Components	5.2R4
CORE-1682	Improved interaction pattern of creating a new dataset.	Content Store, SiteArchitect	5.2R4
CORE-1685	In ContentCreator, erroneous behavior could occur after deleting a folder in the "Manage media" dialog.	ContentCreator, Media Store	5.2R4
CORE-1686	Improved display refresh behavior in the "Manage media" dialog after creating a new folder.	ContentCreator, Media Store	5.2R4
CORE-1702	In external synchronization, improved status calculation after external modification of media content.	External synchronization	5.2R4
CORE-1703	As of the current FirstSpirit release, rule evaluation can be deactivated during generation of the FirstSpirit ContentCreator preview. Further information can be found in chapter "ContentCreator: Deactivating rule evaluation during generation of the ContentCreator preview".	ContentCreator, Developer, Dynamic Forms, FirstSpirit API, Template Development	2018-09
CORE-1717	When using the module "OfficeConnect", copy-and-paste operations from a browser or an Excel sheet would also transfer meta information into the input component CMS_INPUT_DOM.	Editor, Input Components, SiteArchitect	5.2R7
CORE-1719	When using the operating system Mac OS, external images which were copied via cmd + C were erroneously not displayed in the FirstSpirit clipboard.	Clipboard, SiteArchitect	5.2R6

ID	Description	Categories	Version
CORE-1720 CORE-1750	Security improvement related to the FirstSpirit start page.	Security	5.2R4
CORE-1738	By using the newly implemented parameter `log4j.logger.org.apache.http.impl.execchain.` in the file `fs-logging.conf` it is possible to suppress unwanted "NoRouteToHostExceptions". Further information can be found in chapter "Administration: Logging in "fs-server.log" (NoRouteToHostException)".	FirstSpirit Administrator	5.2R7
CORE-1741	In "External Synchronization", the file `Import.txt` in the root export directory did not clearly identify the associated project.	External synchronization	5.2R4
CORE-1742	Exporting a project could lead to erroneous behavior.	Project export / import	5.2R4
CORE-1748	Improved change status calculation for objects when external synchronization is run after normal project export/ import.	External synchronization	5.2R4
CORE-1751 CORE-2597	In the input component CMS_INPUT_DOM, the parameter `enableImport` activates use of the functionality provided by the module "FirstSpirit OfficeConnect". Optimized import into FirstSpirit of images that were resized within an Office document.	Modules, SiteArchitect	5.2R5
CORE-1755	During project import, a backup of the file "fs-database.conf" is now created when a new database layer is selected.	FirstSpirit Administrator	5.2R5
CORE-1766	Erroneous behavior related to nested input components FS_LIST (type INLINE) could occur if the outer input component was used within a dataset form.	Input Components	5.2R5
CORE-1767	In the version history, it was possible in rare cases that the display of the contents of the columns "Editor" and "Comment" was swapped.	SiteArchitect, Version history	5.2R8
CORE-1769	Optimized evaluation of privileges for thumbnail images in the selection dialog when creating pages or sections.	SiteArchitect	5.2R5
CORE-1782	Optimized memory usage of servlet engine.	ContentCreator	5.2R4

ID	Description	Categories	Version
CORE-1786	Improved evaluation of permissions when editing inherited metadata.	Permissions, SiteArchitect	5.2R6
CORE-1788	Improved display of changes in the "Project History" report.	ContentCreator, Reports, Version history	5.2R5
CORE-1798	Improved removal of entries in CMS_INPUT_LIST input components using the Del key. Further information can be found in chapter "SiteArchitect: Optimized keyboard control of CMS_INPUT_LIST".	Input Components, SiteArchitect	5.2R4
CORE-1812	The external synchronisation did not take changes to page references into account.	External synchronization	5.2R4
CORE-1817	In a deeply nested FS_LIST (DATABASE type) adding an entry might have displayed an empty view for the new sub form.	Input Components, SiteArchitect	5.2R4
CORE-1824 CORE-1821	The method `setIgnoreEntities(boolean ignore)` of the interface `ImportOperation` (FirstSpirit Develover API, package `de.espirit.firstspirit.store.access.nexport.`) replaces the method `setCreateEntities`, which has been deprecated as of FirstSpirit version 5.2R4. The new method controls whether existing entities should be imported into the FirstSpirit project. Further information can be found in chapter "External Synchronization: New method "setIgnoreEntities" replaces "setCreateEntities"".	External synchronization	5.2R4
CORE-1828	Automatic population of a data source using a script could lead to erroneous behavior.	Content Store, Modules	5.2R4
CORE-1834	Optimized memory usage when switching between many languages while editing a page.	SiteArchitect	5.2R4
CORE-1835	In the FirstSpirit schema editor, creating a 1:N relationship to the same table has been optimized.	Database, Developer	5.2R6

ID	Description	Categories	Version
CORE-1837 CORE-2124	Improved performance when loading forms in projects with many project languages.	SiteArchitect	5.2R4
CORE-1895	Erroneous behavior could arise in the preview of a page reference when outputting the system object `#this`.	Developer	2018-11
CORE-1905	The standard image resolution for the FOP presentation channel can now be specified using the structure variable `fs_fop_source_resolution`. Further information can be found in chapter "Modules: FOP: Specify Standard Image Resolution".	Developer, FirstSpirit Administrator, Media Store, Modules	5.2R4
CORE-1925	Improved media file selection dialog.	ContentCreator	2018-11
CORE-1936	A request-release workflow that releases via the end state only, not defining an error state, will now be closed when releasing an object failed.	Workflow	5.2R4
CORE-1948	Improved the sorting possibilities in combination with full text search in the data source overview view.	Content Store, SiteArchitect	5.2R4
CORE-1954	Optimized evaluation of privileges when setting a temporary filter on a data source.	Content Store, Permissions	5.2R5
CORE-1977	Improved display of correction hints when form validation (rules) fails.	Dynamic Forms, SiteArchitect	5.2R4
CORE-1978	Beginning with Oracle JDK 1.8, the interface `ProcessAgent` (FirstSpirit Developer API, package `de.espirit.firstspirit.agency`) will use standard JDK functionality to start external processes server-side.	Developer	5.2R5
CORE-1981	Improvements in external synchronization for nested input components.	External synchronization	5.2R5
CORE-2001	Modifications of mutable form values during the generation process now only have local effects and therefore do not affect the results of other channels.	Generation	5.2R5
CORE-2004	If the schedules "Repair References" and "Rebuild Index" had been configured for interactive execution, by mistake authorized persons were not able to execute them.	SiteArchitect, Tasks	5.2R4

ID	Description	Categories	Version
CORE-2007	When moving the mouse pointer within a report, an unnecessary amount of log output was generated.	SiteArchitect	5.2R19
CORE-2012	When searching within a data source, sometimes, datasets were not found by a user due to specific access right settings.	Content Store, Permissions, Search	5.2R4
CORE-2016	Displaying the node properties via the keyboard shortcut Alt + P could lead to erroneous behavior.	SiteArchitect	5.2R5
CORE-2020	Optimized release of child elements.	Release, SiteArchitect	5.2R5
CORE-2025	In rare cases, erroneous behavior could occur when opening the selection dialog in the input component FS_REFERENCE.	Input Components, SiteArchitect	5.2R7
CORE-2041	Automatic population of a data source using a script could lead to erroneous behavior.	Content Store, Developer	5.2R5
CORE-2046	Log messages generated by SiteArchitect and ServerManager will now be stored in separate files on the client workstation of the respective user. Additionally, the current logging may be observed in a separate log window. Further information can be found in chapter "SiteArchitect / ServerManager: Client Logging".	Developer, SiteArchitect, Webstart	5.2R7
CORE-2055	The display of the change status of pages when using a ValueService to make changes has been improved.	SiteArchitect	2018-08
CORE-2061	Improved validation behavior related to nested FS_LIST input components in projects with many languages.	Input Components, SiteArchitect	5.2R5
CORE-2071	The new parameter `preview.enableTemporalPreviewCache` (in the configuration file `fs-server.conf`) may be used to affect caching for preview pages. Further information can be found in chapter "Administration: Caching of preview files".	FirstSpirit Administrator, Preview	5.2R7

ID	Description	Categories	Version
CORE-2079	In the external synchronization process content for languages not included in the source project were skipped during the import into the target project.	External synchronization	5.2R4
CORE-2083 CORE-505 CORE-2119	A number of additions have been made to the "Snippet" area with FirstSpirit version 5.2R4.

Further information can be found in chapter "Input components: Extended snippet access for FS_INDEX and FS_CATALOG". | ContentCreator, Developer, Input Components, SiteArchitect, Snippets, Template Development | 5.2R4 |
CORE-2089	Switching between projects (Menu "Project / Switch Projects") sometimes failed.	SiteArchitect	5.2R4
CORE-2099	While saving a page for which the user has no right to edit the metadata, it could lead to errors.	Permissions, SiteArchitect	5.2R4
CORE-2108	In rare cases, using the browser engine "Google Chrome" for internal preview could lead to erroneous behavior.	Preview, SiteArchitect	5.2R5
CORE-2112	Improved certificate evaluation in the integrated preview when it uses Mozilla Firefox as browser engine.	Preview, Security	5.2R5
CORE-2121	In rare cases the function "Display all changes" displayed no result.	ContentCreator	5.2R4
CORE-2134	The workflow for deleting elements did not respect the display logic script.	Workflow	5.2R4
CORE-2161	Optimized caching for remote projects in the action context.	Developer, FirstSpirit Administrator	5.2R6
CORE-2166	For the language-independent input component FS_LIST (DATABASE type), when switching between languages, newly added entries were not handled properly.	Input Components, SiteArchitect	5.2R4
CORE-2171	Optimized list formatting in the input component CMS_INPUT_DOM.	ContentCreator	5.2R7
CORE-2180	Optimizations for the number of open file handles.	Performance	5.2R5

ID	Description	Categories	Version
CORE-2182	Web applications will now be updated automatically during every FirstSpirit server update. Further information can be found in chapter "Module Development, Scripts, API: Update of Web Applications".	Developer, Module development, Modules, ServerManager	5.2R4
CORE-2206	Improved client resilience to brief interruptions in communication with the server. Further information can be found in chapter "SiteArchitect / ServerManager: Reconnecting after Communication Errors".	ServerManager, SiteArchitect	5.2R5
CORE-2222	When populating the input component FS_INDEX via drag-and-drop from a report in ContentCreator, restrictions of the rule property "ADD" were not considered.	ContentCreator, Dynamic Forms, Input Components	5.2R5
CORE-2234	During generation, erroneous behavior could occur when outputting remote media with identical display names.	Generation	5.2R6
CORE-2242	As of the current FirstSpirit version, viewports of the functionality "Multi Perspective Preview" (MPP) can now be created, modified, and deleted via API. Further information can be found in chapter "Module Development, Scripts, API: Multi Perspective Preview: Creating and configuring viewports via API".	Developer, FirstSpirit API, Multi Perspective Preview	5.2R6
CORE-2247	Duplicate conversion when using `.convert` and `.convert2` in FS_LIST will now be suppressed. Further information can be found in chapter "Input components: Methods ".convert" and ".convert2" in FS_LIST".	Developer, Input Components, Template Development, Template Store	5.2R4

ID	Description	Categories	Version
CORE-2249	In SiteArchitect and ContentCreator, an update of the preview may be triggered via the newly-implemented interface `PreviewOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API). Further information can be found in chapter "Module Development, Scripts, API: Triggering a preview update via API (SiteArchitect and ContentCreator)".	ContentCreator, FirstSpirit API, SiteArchitect	5.2R7
CORE-2259	The content of FirstSpirit JAR files is signed with a certificate. In the current FirstSpirit version, the content is signed with a new certificate that is valid until 2018-06-13 (13 June 2018). Further information can be found in chapter "General: Code signing certificate updated".	Webstart	5.2R5
CORE-2269	When using the functionality "External Synchronization", the method `setDatabaseLayerMapper(ImportOperation.Databa` of the interface `ImportOperation` (FirstSpirit API, package `de.espirit.firstspirit.store.access.nexport.` will now use the correct database layer.	External synchronization	5.2R5
CORE-2270	After changing a dataset a delta generation may have shown a failure.	Delta generation	5.2R4
CORE-2272	In the task list, tasks were erroneously visible to a user who did not have rights to process these tasks.	Permissions, SiteArchitect	5.2R6
CORE-2285	In rare cases, the display of the "Edit image section" icon on media in the section area was erroneous.	ContentCreator	5.2R8
CORE-2303	The GUI of the "External Synchronization" will be omitted with FirstSpirit 5.2R4. Further information can be found in chapter "External Synchronization: GUI will be omitted".	Developer, External synchronization, FirstSpirit API, FirstSpirit Administrator, SiteArchitect	5.2R4

ID	Description	Categories	Version
CORE-2312	Errors occurred when displaying deleted elements in the project history report.	ContentCreator	5.2R20
CORE-2314	In the Media store and in media selection dialogs, erroneous behavior could occur while loading miniature previews of image resolutions.	Media Store, SiteArchitect	5.2R5
CORE-2315	Optimized translation help in ContentCreator. **Note:** In ContentCreator, translation help is an optional feature that is only available if the project is configured to use it, i.e., a project-specific solution that opens translation help was implemented.	ContentCreator	5.2R5
CORE-2327	Improved display of the status bar in the editorial workspace.	SiteArchitect	5.2R5
CORE-2338	To provide better clarity, language tabs won't be shown anymore in FS_CATALOG components that allow selecting link templates (`<TEMPLATES type="link">`). Further information can be found in chapter "Input components: FS_CATALOG: Representing language independent content (link lists)".	Input Components	5.2R16
CORE-2340	When the internal Jetty engine was used as servlet engine, an error message could be written to the log files during server shutdown.	Server Administrator	5.2R5
CORE-2344	Due to refactoring measures, entries were removed from the file `fs-webapp.xml`. This change only affects new installations. For existing FirstSpirit installations, this change may be carried out manually by the FirstSpirit administrator if so desired. Further information can be found in chapter "Administration: Refactoring of the file fs-webapp.xml (web server "Jetty")".	FirstSpirit Administrator	5.2R12
CORE-2359	The evaluation and display of changes within the version comparison was improved for the FS_CATALOG input component.	ContentCreator, SiteArchitect, Version history	5.2R10

ID	Description	Categories	Version
CORE-2361	Improved editing of the input component FS_CATALOG in subforms.	Editor, Input Components, SiteArchitect	5.2R5
CORE-2365	Optimized form updates when using rules to display or hide input components.	Dynamic Forms, SiteArchitect	5.2R7
CORE-2369	With the current FirstSpirit version, additional data sources with all datasets that are contained in the data source at the time of an export can now be exported. You can also check and modify the "implicit/explicit state" for a feature element under "Included objects". Further information can be found in chapter "Modules: Content Transport: Moving datasets and changing the explicit/implicit state of elements".	Content Store, Content Transport	5.2R20
CORE-2372	Erroneous behavior could arise when using the sorted feature list when creating a feature collection via the schedule task action "Content Transport".	Content Transport	2018-10
CORE-2374	Optimized the process of uploading media files via the "Media Import Wizard".	Media Store, SiteArchitect	5.2R5
CORE-2385	If a duplicated conversion of entities using `.convert` or `.convert2` has been prevented, a warn message will now be added to the generation log.	Developer, Template Development	5.2R7
CORE-2386	As of the current FirstSpirit version, it is possible to detect the user interface language of ContentCreator that was selected by the current user. Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Detection of the user interface language ("Locale") selected by the current user".	ContentCreator, Developer, FirstSpirit API	5.2R7

ID	Description	Categories	Version
CORE-2387	When uploading a media file into the Media store using the dialog "Create medium", the file selection dialog defaults to the directory "Documents" within the local user directory. During further file upload actions, the file selection dialog will start in the most recently selected directory.	Media Store	5.2R5
CORE-2388 CORE-2547	As of the current FirstSpirit version, maintenance mode schedule entry actions can now be created via API and running maintenance modes schedules can be terminated via API. Further information can be found in chapter "Module Development, Scripts, API: Creating maintenance mode schedule tasks via API".	FirstSpirit API, Module development, Tasks	5.2R6
CORE-2389	Improved visualization of rule infractions in nested FS_CATALOG input components.	Dynamic Forms, SiteArchitect	5.2R5
CORE-2397	Improved media import via Media Import Wizard.	Media Store	5.2R5
CORE-2412	Improved configuration and evaluation of parameters when several web applications are used.	Server Administrator	5.2R5
CORE-2418	Improved file selection dialog of the input component FS_REFERENCE.	Editor, Input Components, SiteArchitect	5.2R5
CORE-2421	Stability improvement related to SiteArchitect.	SiteArchitect	5.2R5
CORE-2422	In the method `disconnect()` of the interface `Connection` (FirstSpirit Access API, package `de.espirit.firstspirit.access`), improved the disconnection procedure.	Developer	5.2R5
CORE-2435	Starting a FirstSpirit server could lead to erroneous behavior if the user's home directory could not be written to.	FirstSpirit Administrator	5.2R5
CORE-2440	Under special circumstances, displaying the Health Center in FirstSpirit ServerMonitoring could lead to erroneous behavior.	Health Center	5.2R5

ID	Description	Categories	Version
CORE-2445	When creating a feature via a schedule task, erroneous behavior could arise if an element that is included in the feature collection has been deleted from the project in the meantime.	Content Transport	2018-06
CORE-2455	Changed standard configuration: The preset values of the optional parameters `servletSessionCookieName` and `servletSessionCookieName.ROOT` in the file `fs-server.conf` were changed. For all new installations of FirstSpirit, a FirstSpirit-specific session cookie name will be used for all web applications and the root application. Further information can be found in chapter "Administration: Changed standard configuration of session cookies for new installations".	FirstSpirit Administrator, Server Administrator, Sessions	5.2R5
CORE-2456	In rare cases, an additional instance of the ContentCreator user interface could be shown nested within another instance of the user interface.	ContentCreator	5.2R5
CORE-2459	Optimized FirstSpirit access control database.	Database	5.2R6
CORE-2464	Entering text into the input component CMS_INPUT_DOMTABLE is now also possible via drag-and-drop and, when using the module "FirstSpirit OfficeConnect", via Ctrl + V . Further information can be found in chapter "SiteArchitect: Drag-and-drop support for CMS_INPUT_DOMTABLE".	Editor, Input Components, Modules, SiteArchitect	5.2R5
CORE-2475	The FirstSpirit license contains information about the maximum allowable number of open sessions. The evaluation of this parameter and the interaction pattern related to exceeding the licensed maximum number of open sessions has been optimized.	License, Sessions	5.2R5
CORE-2481	Improved use of keyboard shortcuts.	SiteArchitect	5.2R5

ID	Description	Categories	Version
CORE-2505	If the search string contains an unsupported special character, the search may be repeated as an exact search by clicking **Perform an exact search**. Further information can be found in chapter "SiteArchitect: Repeating a search after erroneous input".	Search, SiteArchitect	5.2R8
CORE-2516	Optimized evaluation of connection mode in local connection settings.	FirstSpirit Administrator	5.2R20
CORE-2521	In metadata, referencing an element which has never been released could lead to unexpected results during generation.	SiteArchitect	5.2R5
CORE-2534	The export process of external synchronization to an existing folder may have led to a failure.	External synchronization	5.2R5
CORE-2535	Improved keyboard-based selection of entries in the input component CMS_INPUT_LIST.	Input Components	5.2R5
CORE-2539	Improved localization of the rich-text editor (input component CMS_INPUT_DOM).	ContentCreator	5.2R21
CORE-2551	The new property `PRESET` may be used to determine if the user is currently editing in the dialog "Edit form defaults". Further information can be found in chapter "Input components: Dynamic Forms: New Property "PRESET"".	Developer, Dynamic Forms	5.2R17
CORE-2552	Optimized interaction pattern in Media Management when the user does not have CAN_SEE privileges.	ContentCreator	5.2R8
CORE-2562	When creating a new page in ContentCreator, dot characters ('.') in the display name were erroneously preserved in the reference name.	ContentCreator	5.2R5
CORE-2566	In the input component FS_INDEX, creating a new dataset could lead to erroneous behavior.	ContentCreator, Input Components	5.2R5
CORE-2574	Improved search for dataset ID.	Content Store, Search	5.2R5
CORE-2575	Calling methods of module classes in FS templates may have led to a failure.	Developer, Template Development	5.2R5

ID	Description	Categories	Version
CORE-2585	The behavior of id#187753 (see release notes to FirstSpirit version 5.2.421) showed unwanted effects in script executions and therefore it must be activated explicitly from this build on. Please ask our technical support for guidance. If the behavior is activated scripts may be adapted to the potential change of the data type of the input component CMS_INPUT_TEXT from type `String` to `CharSequence`.	Developer, Input Components, Template Development	5.2R5
CORE-2592	Security improvements in the module "FirstSpirit BasicSearch".	Modules, Security	5.2R5
CORE-2599	Use of certain data types in an Oracle database could lead to erroneous behavior related to sorting in data sources.	Content Store, Database, Editor, SiteArchitect	5.2R7
CORE-2613	Optimized initial display of the suggestion list in the search field of global search and search in the selection dialog of the input component FS_REFERENCE.	Search, SiteArchitect	5.2R5
CORE-2621	When generating in some cases the project properties "substitution medium" and "substitution page" have not been respected.	Generation	5.2R5
CORE-2640	When using the input component CMS_INPUT_DATE in metadata, performing a search within metadata could erroneously cause the input component to be displayed in single-lined mode (parameter `singleLine`) in the metadata form.	Input Components, Search	5.2R5
CORE-2641	Optimized the dialog "Select" for features which were stored on the server via the button "Save feature". It is now possible to delete a stored feature. Further information can be found in chapter "Modules: Corporate Content: ContentTransport: Deleting feature collections".	Content Transport	5.2R7

ID	Description	Categories	Version
CORE-2646	When using the functionality "External Synchronization", importing objects with forms which reference elements that are not yet available in the project could lead to erroneous behavior.	External synchronization	5.2R5
CORE-2647	Optimized display of thumbnails in the brief overview of data sources.	Content Store, Snippets	5.2R5
CORE-2654	Improved notifications of upload hooks when they are used to create media.	Media Store	5.2R19
CORE-2661	In ContentCreator, searching in Help could lead to erroneous behavior.	ContentCreator, Search	5.2R5
CORE-2669	In the input component FS_DATASET with `mode="dialog"`, saving after switching between languages could lead to erroneous behavior.	Input Components, SiteArchitect	5.2R7
CORE-2686	Improved SiteArchitect performance.	Performance, SiteArchitect	5.2R5
CORE-2690	Modified log output for the report "Project History" when starting ContentCreator.	ContentCreator	5.2R7
CORE-2691	Improved display of forms when switching between language tabs.	SiteArchitect	5.2R5
CORE-2695	Improved display of media folders, taking into consideration configured permissions.	Media Store, Permissions, SiteArchitect	5.2R5
CORE-2696	Sporadically, erroneous behavior could occur in the preview while working with ContentCreator.	ContentCreator, Preview	5.2R5
CORE-2698	As of the current FirstSpirit version, a project-specific actions menu can be offered to editors who use ContentCreator. Further information can be found in chapter "ContentCreator: Project-specific action menu".	ContentCreator, Developer, Editor	5.2R6
CORE-2712	Improved evaluation of privileges on a data source when creating a new dataset via the input component FS_DATASET.	Input Components, Permissions	5.2R5

ID	Description	Categories	Version
CORE-2714	Importing a page via "External Synchronization" could lead to erroneous abortion of the import process if the page template used was not present before. Now, the page will not be imported, and the error will be added to `ImportOperation.Result`.	External synchronization	5.2R5
CORE-2721	Improved evaluation of rules in child forms of the input components FS_LIST and FS_CATALOG.	Dynamic Forms, SiteArchitect	5.2R5
CORE-2769	Optimized revalidation in forms when using the form properties *SIZE*, *LENGTH*, *ENTRY*, and the comparison expression *CONTAINS*.	Dynamic Forms	5.2R5
CORE-2770	In the input component CMS_INPUT_DOM with inline tables, erroneous behavior could occur if no table format templates were defined in the project.	ContentCreator, Input Components	5.2R5
CORE-2781	`ProjectReferencesAgent.rebuildReferences(IDP` now repairs more broken references. Further information can be found in chapter "Module Development, Scripts, API: Repairing broken references (rebuildReferences)".	FirstSpirit API	5.2R7
CORE-2785	In the data source overview, default values will now be displayed in semi-transparent fashion. Further information can be found in chapter "SiteArchitect: Display of Default Values in Data Sources".	Content Store, SiteArchitect	5.2R5
CORE-2811	Optimized evaluation of rules when using the property SECTION for the input component FS_REFERENCE. This property may be used to check if a section is selected.	Dynamic Forms, Input Components, SiteArchitect	5.2R5

ID	Description	Categories	Version
CORE-2818	Publishing a package with nodes that were deleted or archived in the source project could cause an error message to be logged. The message will now be logged with the log level "TRACE" such that it no longer appears as an error (log level "ERROR").	Corporate Content	5.2R5
CORE-2820	The configuration file "fs-server.conf" now allows optional configuration of specific values for session cookies. The new attributes can define values for domain, path, and the secure flag of the session cookie. Further information can be found in chapter "Administration: Configuration of session cookies (fs-server.conf)".	FirstSpirit Administrator, Launcher, Server Administrator, ServerManager, Sessions, Webstart	5.2R5
CORE-2831	Corrected access to form fields during generation (FirstSpirit Access API, package `de.espirit.firstspirit.forms`, interface `FormData`, method `get(Language, String)`).	Generation	5.2R5
CORE-2840	During import of a database schema using the functionalities "FirstSpirit Content Transport" or "External Synchronization", the new interface `LayerMapper` (FirstSpirit Developer API, package `de.espirit.firstspirit.transport`) allows selection of a database layer onto which the schema should be mapped. Further information can be found in chapter "Module Development, Scripts, API: External Synchronization / Content Transport: Selecting a database layer for import".	Content Transport, Database, Developer, External synchronization, FirstSpirit API	5.2R5
CORE-2847	If multiple users requested the preview of a page and the calculation took long, this could have led to erroneous behavior.	Preview, SiteArchitect	5.2R9
CORE-2849	Drag-and-drop of media between projects could lead to erroneous behavior.	Media Store, SiteArchitect	5.2R5

ID	Description	Categories	Version
CORE-2870	In the input component FS_LIST (type PAGE), optimized rules evaluation relating to deleted sections.	Dynamic Forms, Input Components, SiteArchitect	5.2R6
CORE-2874	SiteArchitect performance improvements.	Editor, SiteArchitect	5.2R5
CORE-2875	Previously, during an import via "FirstSpirit CorporateContent", nodes in the tree structure were in some cases set to display the metadata icon even though "FirstSpirit CorporateContent" does not transport metadata. This was corrected in the current FirstSpirit version: now, the metadata icon will no longer be set at all after importing via "FirstSpirit CorporateContent".	Corporate Content	5.2R8
CORE-2880	As of the current FirstSpirit version, connections for schedule task scripts can also be established via API (interface `ScriptTask`, package `de.espirit.firstspirit.access.schedule`, FirstSpirit Access API). Further information can be found in chapter "Module Development, Scripts, API: Establishing connections via API in schedule task scripts".	Developer, FirstSpirit API, Tasks	5.2R6
CORE-2886	After deleting user groups in the project properties ("FirstSpirit ServerManager / Project / Properties / Groups / Remove group") related information on nodes with defined permissions in SiteArchitect were erroneously not updated.	FirstSpirit Administrator, Permissions	5.2R6
CORE-2914	The configuration of a new feature package can again be tested in the schedule action "Content Transport" (ServerManager / Project / Properties / Schedule management / Add / Default schedule / Actions / Add / Content Transport / Test configuration).	Content Transport, ServerManager	5.2R5

ID	Description	Categories	Version
CORE-2923	A section reference can now also be created via the context menu entry "Paste as section reference" or via the keyboard shortcut `Ctrl` + `Alt` + `V`. Further information can be found in chapter "SiteArchitect: Creating a section reference via context menu or keyboard shortcut".	Editor, SiteArchitect	5.2R8
CORE-2931	So called "Pluggability" features (Java Servlet Specification 3.0) can be disabled starting with the current FirstSpirit version. Further information can be found in chapter "Administration: Apache Tomcat / Java Servlet Specification 3.0: Disabling Pluggability features".	FirstSpirit Administrator, ServerManager	5.2R7
CORE-2935	It is possible to restrict the choice of data sources for the input component FS_DATASET by using the tag `<CONTENT>`. The configured data sources are now better respected in the selection dialog.	SiteArchitect	5.2R9
CORE-2941	In association with a Tomcat web server, authentication via the FirstSpirit start page could lead to erroneous behavior if a password contained special characters.	FirstSpirit home page, Server Administrator	5.2R5
CORE-2945	Optimized rule evaluation during emptiness check (property EMPTY).	Dynamic Forms	5.2R5
CORE-2950	Optimized display of the start page in Google Chrome when using automatic login.	FirstSpirit home page	5.2R5
CORE-2954	Improved logging of web applications running on Tomcat web server.	FirstSpirit Administrator	5.2R5

ID	Description	Categories	Version
CORE-2985	In the module "FirstSpirit Security", the parameter `profilname.dir` in the file "crcTransfer.ini" may be used to configure the web application. If the parameter was given a value which included a trailing slash (.../) in the path string, erroneous behavior could occur. Now, it is possible to use a path that includes a trailing slash character.	Modules	5.2R5
CORE-2993	For the input component FS_CATALOG, improved the input dialog and drag-and-dropp of media from the AppCenter.	Editor, Input Components, SiteArchitect	5.2R5
CORE-2999	When using Apache Tomcat version 8.0.36, instead of displaying the specifically requested dataset on a content projection page, the first dataset of this content projection may have been displayed.	ContentCreator, Editor, Preview	5.2R5
CORE-3001	In SiteArchitect running on Mac OS X, erroneous use of the system clipboard could occur.	Clipboard, SiteArchitect	5.2R5
CORE-3020	Optimized display of the "Task list" menu icon.	SiteArchitect	5.2R5
CORE-3042	Optimized automatic roll-out of web applications during server start-up.	Server Administrator	5.2R5
CORE-3052	Optimized determination of release state of restored folders.	Release	5.2R5
CORE-3055	In rare cases, erroneous behavior could arise when creating features.	Content Transport	5.2R20
CORE-3066	Improved behavior of a release workflow, specific to situations in which the element to be released contains invalid references (e.g. in an FS_REFERENCE input component).	Release, SiteArchitect, Workflow	5.2R5
CORE-3067	In very rare cases, using the input component FS_CATALOG could lead to erroneous behavior.	Input Components, SiteArchitect	5.2R5

ID	Description	Categories	Version
CORE-3068	Importing content packages into projects which define languages that were not defined in the source project could lead to erroneous behavior in input components that are grouped with the design element CMS_GROUP.	Corporate Content, Input Components	5.2R5
CORE-3074	During configuration of a database schema, renaming columns with N:M foreign key relationships could lead to erroneous behavior.	Database	5.2R5
CORE-3085	Optimized determination of the target element of dataset selection in a data source for the following actions: ■ "Version history" (Ctrl + H) ■ "Extras / Show usages" (Ctrl + U) ■ "Extras / Display dependencies" (Ctrl + R)	Content Store, SiteArchitect	5.2R6
CORE-3100	Optimized setting values via rules in ContentCreator.	ContentCreator, Dynamic Forms	5.2R6
CORE-3110	Optimized display of data source contents in the selection dialog of the input component FS_LIST (type DATABASE).	ContentCreator	5.2R5
CORE-3111	Realignment of module development: As of the current FirstSpirit version, modules can for the first time be developed with isolated resources. This new functionality allows module developers greater freedom in the selection of libraries to be used. Global dependencies to other product components are mostly avoided. Further information can be found in chapter "Module Development, Scripts, API: Isolated mode (BETA) - Realignment of module development".	Developer, Module development, Modules	5.2R6
CORE-3114	In the input component CMS_INPUT_DOM with active spell check, erroneous behavior could occur.	ContentCreator	5.2R7
CORE-3117	Optimized spell check for the input components CMS_INPUT_DOM and CMS_INPUT_DOMTABLE.	ContentCreator, SiteArchitect	5.2R5

ID	Description	Categories	Version
CORE-3119	Optimized handling of rule infractions in ContentCreator.	ContentCreator, Dynamic Forms	5.2R5
CORE-3137 CORE-541 CORE-908	FirstSpirit version 5.2R3 implemented a new roll-out behavior for the FirstSpirit web applications. The previously used ZIP files have now been removed from the file `fs-server.jar`. This leads to a significant decrease in the file size of `fs-server.jar`. Further information can be found in chapter "Modules (general): Distribution of the FirstSpirit web applications as modules (.fsm)".	FirstSpirit Administrator, Modules, ServerManager	5.2R6
CORE-3182	The file names of backup copies of `fs-server.jar` files, created during server updates via FirstSpirit ServerMonitoring, will now be formed using `_jar` instead of `.jar`. Further information can be found in chapter "Administration: Server Update: File name change for backup copies of files".	Server Administrator	5.2R6
CORE-3184	Using the input component FS_LIST (type DATABASE) within metadata could lead to erroneous behavior.	Input Components, SiteArchitect	5.2R5
CORE-3202	In rare cases, use of the FirstSpirit Launcher could lead to erroneous behavior.	Launcher	5.2R5
CORE-3203 CORE-3200	Security improvements in ServerManager.	Security, ServerManager	5.2R5
CORE-3220	In the input component CMS_INPUT_DATE, input via keyboard could cause erroneous behavior.	ContentCreator	5.2R7
CORE-3230	The taking into account of the user setting for the preferred display language has been optimized.	SiteArchitect	2018-08
CORE-3239	In a workflow, users that have server administrator privileges could erroneously not be selected as next editors.	SiteArchitect, Workflow	5.2R5

ID	Description	Categories	Version
CORE-3246	The new plugin type `WebeditStatusNotePlugin` may be used to prominently display page-related status information in ContentCreator. Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Displaying page-related status information prominently".	ContentCreator, Developer, Editor, FirstSpirit API	5.2R6
CORE-3247	In the input component FS_INDEX, erroneous behavior could occur when cancelling edit mode on a newly created entry.	Input Components, SiteArchitect	5.2R6
CORE-3249	Using "Translation Help" functionality could lead to erroneous behavior.	SiteArchitect	5.2R5
CORE-3273	Using several web components can potentially cause conflicts between identical resources. Optimized conflict identification and conflict resolution.	FirstSpirit Administrator, Modules	5.2R6
CORE-3278	In rare cases, erroneous behavior could occur during media import.	Media Store, SiteArchitect	5.2R6
CORE-3282	For the input component FS_DATASET, optimized rule evaluation when creating a new dataset.	Dynamic Forms, Input Components, SiteArchitect	5.2R5
CORE-3290	Optimized use of JSP Includes for inclusion of HTML or JSP content in a FirstSpirit page.	ContentCreator, Preview	5.2R5
CORE-3292	When creating a format template, after inputting a reference name, the label of the field "Reference name" was erroneously still shown in red type.	SiteArchitect, Template Store	5.2R6

ID	Description	Categories	Version

CORE-3293	On a *FormData* object, the method `get(Language, String)` allows access to the *FormField*.
	
	The output of the following (simplified) syntax, which allows access to the content of a *FormField* in the language currently being rendered, has been corrected:
	
	`$CMS_VALUE(IDENTIFIER.formData["IDENTIFIER2"`
	
	Alternatively, either of the following syntaxes will yield the same result:
	
	`$CMS_VALUE(IDENTIFIER.formData.IDENTIFIER2)$`
	
	`$CMS_VALUE(IDENTIFIER.formData.get("IDENTIFII`
		Developer	5.2R5

CORE-3296	Optimized deletion of link templates that are still referenced.	Template Development	5.2R17
CORE-3304	Stability when accessing FirstSpirit web applications on external web servers has been improved. Further information can be found in chapter "Administration: Starting process: Improved stability when accessing FirstSpirit web applications on external web servers".	FirstSpirit Administrator, ServerManager	5.2R6
CORE-3318	Saving several times during editing in "Translation Help" could lead to erroneous behavior.	Editor, SiteArchitect	5.2R5
CORE-3330	In rare cases, releasing a page reference could lead to erroneous behavior.	Release, SiteArchitect	5.2R6
CORE-3347	A new `-D` parameter can speed up work with the file selection dialog (FirstSpirit SiteArchitect and FirstSpirit ServerManager). Further information can be found in chapter "SiteArchitect / ServerManager: Speeding up file selection from directory structure of the client workstation".	Editor, FirstSpirit Administrator, FirstSpirit home page, Media Store, Performance, ServerManager, SiteArchitect	5.2R6

ID	Description	Categories	Version
CORE-3354	When copying sections, the original order was erroneously not observed.	Page Store, SiteArchitect	5.2R7
CORE-3356	Erroneous behavior could occur when using the functionality "LiveEdit".	ContentCreator	5.2R7
CORE-3371	Using WebSphere as an application server may have resulted in malfunctions when logging in on the FirstSpirit start page.	FirstSpirit home page	5.2R6
CORE-3372 CORE-3374 CORE-3392	Missing library dependencies have been added for the FirstSpirit web application from the "fs-integration.fsm", "fs-search.fsm" and "fs-security.fsm" modules. Updating these modules is recommended. Further information can be found in chapter "Modules (general): Library dependencies added in FirstSpirit web applications".	Module development, Modules	5.2R6
CORE-3384	Improved loading performance of SiteArchitect after project selection.	SiteArchitect	5.2R6
CORE-3393	As of the current FirstSpirit version, the new interface `ConnectionExtractor` (package `de.espirit.firstspirit.web`, FirstSpirit Developer API) is available. Further information can be found in chapter "Module Development, Scripts, API: New API interface "ConnectionExtractor" allows access to the connection of the logged-in user".	Developer, FirstSpirit API	5.2R16
CORE-3409	The display has been improved when comparing versions of metadata.	SiteArchitect	5.2R7
CORE-3416	In SiteArchitect, improved consideration of the template set that is configured for a preview viewport (functionality "Multi Perspective Preview").	Multi Perspective Preview, SiteArchitect	5.2R6
CORE-3417	Uninstalling a defective module may have failed.	ServerManager	5.2R7

ID	Description	Categories	Version
CORE-3418	Erroneous behavior could occur when creating images using the method `getImageFromIcon(Icon)` (interface `ImageAgent`, package `de.espirit.firstspirit.agency`).	FirstSpirit API	5.2R6
CORE-3422	The method `checkAndThrow()`, part of the interface `ServerActionHandle` (FirstSpirit Access-API, Package `de.espirit.firstspirit.access`), has been optimized.	Developer, FirstSpirit API	5.2R6
CORE-3424	Optimized logging for project components during server start-up.	Isolated mode (BETA)	5.2R7
CORE-3426	As of the current FirstSpirit version, the start-up process is considered to be finished before web application updates are performed. Further information can be found in chapter "Administration: Start-up process: FirstSpirit server starts up independently of web application updates".	FirstSpirit Administrator	5.2R6
CORE-3428	In form, rule, and output channel editors of templates, using the action "Undo" (Ctrl + Z) could lead to erroneous behavior.	Developer, SiteArchitect, Template Store	5.2R6
CORE-3431	Optimized copying of content into the FirstSpirit clipboard via the keyboard shortcut Ctrl + C .	Clipboard, SiteArchitect	5.2R6
CORE-3436	The performance has been optimized for the Mac OS X operating system when adding elements to the tree with drag-and-drop.	SiteArchitect	5.2R6
CORE-3452	The recognition of file types when uploading media using drag-and-drop has been improved. Further information can be found in chapter "Media: Recoginition of file types when uploading media using drag-and-drop improved".	Editor, Media Store	5.2R6
CORE-3456	For a user with server administrator privileges, "Administrator mode" was erroneously initially active in SiteArchitect (menu: "Project / Administrator mode").	Server Administrator, SiteArchitect	5.2R6

ID	Description	Categories	Version
CORE-3461	Improvements have been made to the display in the dialog for renaming objects in projects with many different languages.	SiteArchitect	2018-07
CORE-3464	Generating output of data sets from a content source using the function `contentSelect` did not work correctly in some cases.	Generation	5.2R6
CORE-3466	FirstSpirit Server performance improvements in the "Send message" area (ServerManager: menu "Extras / Send message").	Performance, Server Administrator	5.2R6
CORE-3475	Corrected information about libraries in system web app components.	Isolated mode (BETA)	5.2R7
CORE-3479	To improve traceability, improvements have been made to logging the server update schedule in the current FirstSpirit version. Further information can be found in chapter "Administration: Server update: Improved schedule logging".	FirstSpirit Administrator, Tasks	5.2R6
CORE-3481	On the FirstSpirit start page, the user will now be notified about a failed login (invalid user name or password) with the message "Login to the server 'XYZ' failed!"	FirstSpirit home page	5.2R10
CORE-3482	Optimized modification detection of a page when adding a section via copy-and-paste.	SiteArchitect	5.2R6
CORE-3493	Improvements in the area "Content Transport".	Content Transport	5.2R6
CORE-3495	Optimized the action "Undo" (Ctrl + Z) in form, rule, and output channel editors.	Developer, SiteArchitect, Template Store	5.2R6

ID	Description	Categories	Version
CORE-3505	Improved detection of identical or compatible module resources using unique identifiers (following the Maven schema) and the properties "version", "minVersion", and "maxVersion". Further information can be found in chapter "Module Development, Scripts, API: Improved detection of identical or compatible module resources".	Developer, Module development, Modules	5.2R6
CORE-3508	The way in which the FirstSpirit administrator user is handled in the case of special configurations has been improved.	FirstSpirit Administrator	5.2R10
CORE-3519	When editing content, clicking in the integrated preview could lead to erroneous behavior of keyboard control.	SiteArchitect	5.2R8
CORE-3529	As of the current version of FirstSpirit, the FirstSpirit server will recognize if web applications on a Tomcat running on a dedicated host are not up-to-date and will trigger an update. Further information can be found in chapter "Administration: Web server Apache Tomcat: Automatic update of web applications".	Developer, FirstSpirit Administrator	5.2R6
CORE-3535	The behavior when changing the language or focus in the FS_CATALOG input component has been optimized.	Input Components	5.2R6
CORE-3542	For newly-created sections, toggling the option "Include this section in the output" was erroneously not observed during rule evaluation if the page was already in edit mode.	Dynamic Forms	5.2R7
CORE-3547	When installing the Launcher, problems could arise if multiple users used the same computer.	Launcher	5.2R12
CORE-3548	Cleanup of the repository files during archiving has been improved.	Archiving, FirstSpirit Administrator	5.2R6
CORE-3549	File pointer management for socket connections has been improved.	Server Administrator	5.2R6
CORE-3550	Generation may have resulted in a malfunction.	Generation	5.2R6

ID	Description	Categories	Version
CORE-3562	When the available software versions cannot be loaded, due to the update service not being available, the user is now shown a suitable error message.	ServerMonitoring	2018-07
CORE-3563	Evaluation of the project property "Languages can be hidden" ("FirstSpirit ServerManager / Project / Properties / Options") in SiteArchitect has been improved.	ServerManager, SiteArchitect	5.2R6
CORE-3564	Optimized stop/restart process of web applications when using Apache Tomcat 8 as web server.	FirstSpirit Administrator	5.2R6
CORE-3572	In rare cases, accessing the repository may have resulted in malfunctions.	FirstSpirit Administrator, ServerManager	5.2R6
CORE-3574	Updating icons and label of MenuItemsPlugin (Interface `JavaClientEditorialToolbarItemsPlugin`, Package `de.espirit.firstspirit.client.plugin`) has been improved.	SiteArchitect	5.2R6
CORE-3577	Erroneous behavior could occur during start-up of FirstSpirit SiteArchitect if Websphere was used as an application server.	FirstSpirit Administrator	5.2R6
CORE-3580	Recognition of file patterns in the context of archiving has been improved.	Archiving	5.2R6
CORE-3581	After changing and creating another version of a content package, the found dependency was erroneously logged as WARN instead of INFO.	Corporate Content	5.2R20
CORE-3583	The `getService(Class<T>)` method of the `ServicesBroker` interface (FirstSPirit Access API, Package `de.espirit.firstspirit.access`) has been optimized.	FirstSpirit API, Performance	5.2R6
CORE-3591	Rolling out a package in the target project may have resulted in a malfunction.	Corporate Content	5.2R6

ID	Description	Categories	Version
CORE-3605	Improved safeguard from erroneous path configurations for global web applications in the file `fs-server.conf` (parameters `WEB_DIR`, `WEBAPP_ROOT_PATH`, `WEBAPP_WEBEDIT5_PATH`, `WEBAPP_WEBMON_PATH`, `WEBAPP_STAGING_PATH`, and `WEBAPP_PREVIEW_PATH`).	FirstSpirit Administrator	5.2R6
CORE-3608	While using or updating the FOP module, erroneous behavior could occur.	FirstSpirit Administrator, Modules, ServerManager	5.2R6
CORE-3611	Optimized rule evaluation for option-based input components (e.g. CMS_INPUT_COMBOBOX) whose values are sourced from a database.	ContentCreator, Dynamic Forms	5.2R7
CORE-3623	Optimized memory usage in ContentCreator.	ContentCreator	5.2R6
CORE-3635	When using a nested FS_CATALOG input component, erroneous display could occur in the edit/"snippet" view.	Input Components, SiteArchitect	5.2R7
CORE-3636	After updating a module via server properties in ServerManager, the version of a web application associated with that module will now be displayed correctly in project properties.	Isolated mode (BETA)	5.2R7
CORE-3642	Under certain circumstances, nesting of the input component FS_CATALOG could lead to erroneous behavior.	SiteArchitect	5.2R12
CORE-3644	The report sidebar is now resizable. Further information can be found in chapter "ContentCreator: Dynamically resizable report sidebar".	ContentCreator, Reports	5.2R8
CORE-3645	Optimized observation of activated editorial languages in forms.	ContentCreator	5.2R6
CORE-3675	Erroneous behavior could occur when populating input components located in sub-forms via drag-and-drop.	Input Components, SiteArchitect	5.2R6

ID	Description	Categories	Version
CORE-3681	When using multiple monitors, the position of SiteArchitect was erroneously not considered when displaying confirmation dialogs.	SiteArchitect	5.2R7
CORE-3682	Erroneous behavior could occur when restarting the server via ServerMonitoring.	FirstSpirit Administrator	5.2R6
CORE-3686	Improved observation of restrictions in the input component FS_REFERENCE when multiple remote connections to the own project are used.	Input Components, SiteArchitect	5.2R7
CORE-3688	Improved preview of the selected datasets when using "Multi Perspective Preview" (MPP).	Multi Perspective Preview, SiteArchitect	5.2R6
CORE-3689	In very rare cases, using code completion in the form could cause erroneous behavior.	Template Development	5.2R7
CORE-3690	Undesired notifications may have been shown to a user on pages for which he/she only had the permission "Visible".	Permissions, SiteArchitect	5.2R6
CORE-3703	In the selection dialog, optimized loading behavior of the preview image.	SiteArchitect	5.2R7
CORE-3704	Optimized layout of tree node labels in the input component CMS_INPUT_PERMISSION.	ContentCreator	5.2R6
CORE-3710	Improved rule-based control for editing entries of the input components FS_CATALOG and FS_INDEX.	Input Components, SiteArchitect	5.2R6
CORE-3713	Improved focus behavior when scrolling or making selections in the input component CMS_INPUT_DOM.	Input Components, SiteArchitect	5.2R6
CORE-3719	The process of cropping images has been improved.	Media Store, SiteArchitect	5.2R10

ID	Description	Categories	Version
CORE-3730	For improved consistency, the title text that may be set for a dialog via the method `setTitle(String title)` of the interface `ShowFormDialogOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API) is now also used for the dialog's main title. Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Use of "setTitle" for a dialog's main title".	ContentCreator, FirstSpirit API	5.2R7
CORE-3732	Optimized display of long link texts in the input component CMS_INPUT_LINK.	ContentCreator	5.2R21
CORE-3742	When previewing entries of the input component FS_INDEX, the "Refresh" button in the main toolbar was erroneously deactivated.	SiteArchitect	5.2R19
CORE-3745	Erroneous behavior could occur when displaying the input component FS_LIST (type DATABASE) in a dataset form.	Input Components, SiteArchitect	5.2R6
CORE-3751	Optimized detection of incompatible module resources.	Isolated mode (BETA)	5.2R7
CORE-3753	Deregistering a cluster slave server from the cluster master server via ServerManager could temporarily lead to the deregistered slave server no longer restarting automatically.	Server Administrator, ServerManager	5.2R7
CORE-3763	Synchronization issues could arise in language-independent input components while editing the form in multiple languages.	Input Components, SiteArchitect	5.2R6
CORE-3768	Improved performance when editing data sources.	Content Store, Performance, SiteArchitect	5.2R6
CORE-3788	Synchronizing between workspace and the preview area after saving changes in forms has bee optimized.	Preview, SiteArchitect, Template Store	5.2R6
CORE-3789	Highlighting of entries of a report when moving the mouse pointer over an element has been improved.	Reports, SiteArchitect	5.2R6
CORE-3792	Improved display logic for workflows in the status bar.	SiteArchitect, Workflow	5.2R7

ID	Description	Categories	Version
CORE-3793	Inserting and filling new lines in CMS_INPUT_DOMTABLE input component has been improved.	ContentCreator, Input Components	5.2R6
CORE-3794	Erroneous behavior could occur when creating a database schema from an external database.	Database, SiteArchitect	5.2R6
CORE-3795	During archiving, inbound references are now also considered.	Archiving	5.2R7
CORE-3796	Optimized loading of action groups of MenuItemsPlugin (interface `JavaClientEditorialToolbarItemsPlugin`, package `de.espirit.firstspirit.client.plugin`).	SiteArchitect	5.2R7
CORE-3797	Modified logging during FirstSpirit server start-up for the case that web applications are running on an external Tomcat.	FirstSpirit Administrator	5.2R7
CORE-3812	When creating a database schema from an external database, problems in accessing foreign key columns could occur.	Database	5.2R7
CORE-3816 CORE-3951	Optimized performance when editing datasets that are displayed within the form of an input component FS_LIST (type DATABASE).	Content Store, Performance, SiteArchitect	5.2R6
CORE-3822	During an export, the folder "Lost & Found" will no longer be exported. This behavior may be controlled via a new API method. Further information can be found in chapter "External Synchronization: Export: Folder "Lost & Found" will no longer be exported".	External synchronization	5.2R14
CORE-3840	Erroneous behavior could occur when using the methods `hasGui()` and `getGui(Frame)` of the interface `Configuration` (FirstSpirit Developer API, package `de.espirit.firstspirit.module`).	Developer, Modules	5.2R7

ID	Description	Categories	Version
CORE-3848	Aborting workflows from within the task list now requires at least project administrator privileges. Further information can be found in chapter "SiteArchitect: Workflows / Task list: Aborting workflows now requires project administrator privileges".	Permissions, SiteArchitect, Workflow	5.2R10
CORE-3851	Optimized performance of loading data sources with datasets which contain an input component of type FS_INDEX.	Performance, SiteArchitect	5.2R7
CORE-3854	Improved rules evaluation in the input component CMS_INPUT_LINK.	Dynamic Forms, SiteArchitect	5.2R7
CORE-3855	Improved focus behavior when scrolling or making selections in the input component CMS_INPUT_DOMTABLE.	Input Components, SiteArchitect	5.2R6
CORE-3869	You can suppress the media preview in the project properties in the ServerManager. This setting is now correctly evaluated in the SiteArchitect.	Preview, SiteArchitect	5.2R13
CORE-3871	A confirmation dialog now warns a user if an element is about to be deleted which is still bookmarked as a master copy. Further information can be found in chapter "ContentCreator: Deletion of bookmarks and master copies".	Bookmarks, ContentCreator, Editor	5.2R7
CORE-3882	Optimized performance of loading the data source overview with datasets whose forms contain an FS_INDEX input component with many referenced datasets.	Content Store, Input Components, SiteArchitect	5.2R7
CORE-3884	In order to rename objects in the tree, the function key `F2` may be used as an alternative to the function key `F9`.	SiteArchitect	5.2R6
CORE-3886	As of the current FirstSpirit version, Microsoft SQL Server, version 2016, is officially supported for use with FirstSpirit as a database server running on Windows servers. Further information can be found in chapter "General: Databases: Support for Microsoft SQL Server 2016 and data type "ntext"".	Database	5.2R10

ID	Description	Categories	Version
CORE-3888	As of the current FirstSpirit version, MariaDB is officially supported for use with FirstSpirit. Further information can be found in chapter "General: Datenbases: Support for MariaDB".	Database	5.2R12
CORE-3890	The interface `Executable` has been improved. Further information can be found in chapter "Module Development, Scripts, API: Interface "Executable" (package "de.espirit.firstspirit.access.script") improved".	Developer, FirstSpirit API	5.2R13
CORE-3891	Improved stability of connections between SiteArchitect and server.	SiteArchitect	5.2R6
CORE-3897	Caching of DNS entries can now optionally be configured via the parameter `networkaddress.cache.ttl` in the file `fs-server.conf`. Further information can be found in chapter "Administration: Configuration of JVM time-to-live (TTL) for DNS name look-ups".	Server Administrator	2018-11
CORE-3898	If an FS_INDEX input component does not contain any entries, the new method `.isEmpty()` returns `true`. Further information can be found in chapter "Input components: FS_INDEX: Emptiness check with ".isEmpty"".	Input Components, Template Development	5.2R7
CORE-3900	The language display has now been optimized through more stringent use of stored display names. Further information can be found in chapter "SiteArchitect / ServerManager: Use of display names".	Languages, ServerManager, SiteArchitect	5.2R21
CORE-3910	Improved the display of web components in project properties.	ServerManager	5.2R7

ID	Description	Categories	Version
CORE-3911	When using the FirstSpirit module "OfficeConnect", contents from the clipboard can now be pasted as plain text - without formatting, links, images, etc. - via the keyboard shortcut Ctrl + Shift + V . Further information can be found in chapter "Modules: OfficeConnect: Pasting as plain text with Ctrl+Shift+V".	Clipboard, Editor, Modules, SiteArchitect	5.2R11
CORE-3913 CORE-3914	Optimized performance when selecting objects in the tree.	Performance, SiteArchitect	5.2R6
CORE-3917	When the browser Mozilla Firefox was used, inputting text following a link in a table cell could cause erroneous behavior.	ContentCreator	5.2R18
CORE-3918	In the input component CMS_INPUT_DOM, corrected copying of links between different languages.	ContentCreator	5.2R7
CORE-3919	Improved evaluation of settings for browser, office, and graphics engine.	SiteArchitect	5.2R6
CORE-3920	Optimized notification about rule infractions related to subforms of the input component FS_LIST.	Dynamic Forms, SiteArchitect	5.2R7
CORE-3922	When adding a table template to a feature, the schema node was erroneously not considered a required reference. This could lead to erroneous behavior when installing the feature.	Content Transport	5.2R8
CORE-3934	Optimized display of messages in SiteArchitect which are sent from within ServerMonitoring ("FirstSpirit / Message").	SiteArchitect	2018-12
CORE-3942	Improved user experience when searching in a data source.	Content Store, SiteArchitect	2018-07

ID	Description	Categories	Version
CORE-3949	The `VersionInfo` object returned by the interface `ServerInformationAgent` (FirstSpirit Access API, package `de.espirit.firstspirit.agency`) now provides information about the currently active server mode ("Legacy" or "Isolated"). Further information can be found in chapter "Module Development, Scripts, API: Identification of server mode (isolated vs. legacy)".	Developer, FirstSpirit API, Isolated mode (BETA), Module development	5.2R7
CORE-3950	Optimized the order of (image) resolutions which are transported from a source project into a target project using FirstSpirit ContentTransport or External Synchronization. Further information can be found in chapter "Modules: Corporate Content: Multisite Management: Export of image resolutions".	Content Transport, External synchronization	5.2R7
CORE-3954	In external synchronization, unnecessary updates are now avoided during import.	External synchronization	5.2R7
CORE-3963	Enhanced logging in the module "FirstSpirit DynamicPersonalization".	Modules	5.2R7
CORE-3983	Identical resources have been consolidated when using more than one project-specific web component.	Modules, Server Administrator	5.2R7
CORE-3990	Improved consideration of authorized users during mail dispatch in workflows.	Workflow	5.2R7
CORE-3993	In the overview of the input component FS_LIST (type DATABASE), erroneous behavior could occur in the display of columns mapped to N:M foreign key relationships.	Input Components, SiteArchitect	5.2R6
CORE-3996	From the current FirstSpirit version onwards, an internal web server URL may be configured for web server. Further information can be found in chapter "Administration: Updating web applications on external web servers".	FirstSpirit Administrator, ServerManager	5.2R7

ID	Description	Categories	Version
CORE-4005	The new method `getServerName()` (Interface `ServerInformationAgent`, FirstSpirit Access-API) returns the server's hostname. Further information can be found in chapter "Module Development, Scripts, API: Getting the host name per API (interface "ServerInformationAgent")".	FirstSpirit API	5.2R10
CORE-4007	Improved stability in integrated preview when using the browser engine "Internet Explorer".	Preview, SiteArchitect	5.2R7
CORE-4011	Optimized indexing performance.	SiteArchitect	5.2R8
CORE-4013	Optimized status detection for the menu entry "View" / "Display area of AppCenter / Preview".	SiteArchitect	5.2R7
CORE-4020	Login-related security improvements on the start page.	FirstSpirit home page, Security	2018-06
CORE-4032	New interface `ProjectCleanupTask` in the package `de.espirit.firstspirit.access.schedule` (FirstSpirit Developer API) allows for creating and configuring archival schedule actions. Further information can be found in chapter "Module Development, Scripts, API: Schedules: Creating and configuring an archival schedule action via API (de.espirit.firstspirit.access.schedule.ProjectCleanupTask)".	Advanced URL, Archiving, Developer, FirstSpirit API, Tasks	5.2R9
CORE-4049	Optimized performance of saving datasets whose forms contain an FS_LIST input component (type DATABASE) with many referenced datasets.	SiteArchitect	5.2R7
CORE-4050	Corrected the return value of the statement `$CMS_REF(...)$` when using the optional parameter `abs:2`.	Developer, Template Development	5.2R7
CORE-4061	The update process of global web applications when updating the FirstSpirit server has been improved.	Server Administrator	5.2R7

ID	Description	Categories	Version
CORE-4062	During import, certain specific circumstances could lead to elements in the external file system being mistakenly deleted if, previously, local changes were made in the target project that differed from the exported state.	External synchronization	5.2R7
CORE-4063	Performance improvements related to the Page Content store when saving a page with many sections.	SiteArchitect	5.2R7
CORE-4064	A defective display of the menu bar in ContentCreator could occur after deleting a table template in SiteArchitect	ContentCreator	5.2R7
CORE-4070	In very rare cases, using the input component FS_INDEX within a language-dependent FS_CATALOG input component could cause erroneous behavior.	ContentCreator	5.2R7
CORE-4072	Improved identification of invalid references in the input component FS_LIST (type DATABASE).	Input Components, SiteArchitect	5.2R7
CORE-4080	Improved display of the results of a query in the query template.	SiteArchitect, Template Store	5.2R7
CORE-4092	In certain circumstances, switching between languages in the workspace area could lead to erroneous behavior.	SiteArchitect	5.2R7
CORE-4103	In rare cases, setting focus on an object could lead to an erroneous state of action buttons.	SiteArchitect	5.2R7
CORE-4104	Elements in the FS_INDEX input element (e.g., datasets) can now be edited language-dependently in edit mode in FirstSpirit ContentCreator. Further information can be found in chapter "ContentCreator: FS_INDEX: Language can now be changed in the internal elements".	ContentCreator, Database, Editor, Input Components, Languages	2018-07
CORE-4108	Optimized performance of calculating the page preview with many database-based input components of type CMS_INPUT_COMBOBOX.	Performance, Preview	5.2R7
CORE-4111	Improved cluster generation on slave servers.	Generation	5.2R12

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ID	Description	Categories	Version
CORE-4128	In image galleries (input component FS_LIST, type DATABASE with `<MEDIAMODE>` tag), a manually created sort order of entries was erroneously not observed.	Input Components, SiteArchitect	5.2R7
CORE-4148	Optimized search for datasets in the selection dialog of the input component FS_LIST.	Input Components	5.2R8
CORE-4150	As of the current FirstSpirit version, user interface elements in ContentCreator (e.g. menus "Contents", "Media", and "Actions"; menu entries; input components; and report parameters) are identified in HTML. Further information can be found in chapter "ContentCreator: Identification of user interface elements".	ContentCreator, Developer, FirstSpirit API	5.2R7
CORE-4163	Optimized transport of table templates into a target project with a different language set. Further information can be found in chapter "Modules: Corporate Content: Multisite Management: Transport of table templates into projects with different language counts".	Content Transport, SiteArchitect, Table templates	5.2R7
CORE-4168	In SiteArchitect running on macOS, use of the input component FS_LIST could lead to limited operability of SiteArchitect.	Input Components, SiteArchitect	5.2R7
CORE-4171	If a table template lacked definition of a preview page, refreshing the page could lead to an erroneous display in the preview.	ContentCreator	5.2R8

ID	Description	Categories	Version
CORE-4172 CORE-3865 CORE-3901 CORE-4308	In the course of export format readjustment, an export will now only create one directory named `.FirstSpirit` instead of creating several directories of that name. Furthermore, the contents of the files `Info.txt` and `Files.txt`, which also contain internal meta information, have been changed, and the files have been renamed to `FS_Info.txt` and `FS_Files.txt`, respectively. In this context, the format of the file `Entities.xml`, which contains contents of datasets, has been changed as well. Further information can be found in chapter "External Synchronization: General changes to the data format".	External synchronization	5.2R14
CORE-4173	In addition to providing information about files which were created in, deleted from, or updated in the file system during an export, the interface `ExportOperation.Result` now includes newly implemented methods which provide information about moved files as well as other information (FirstSpirit Developer API, package `de.espirit.firstspirit.store.access.nexport.` interface `ExportOperation.Result`). Further information can be found in chapter "External Synchronization: Export: Additional information about exported files (interface "ExportOperation.Result")".	External synchronization	5.2R14
CORE-4189	The detection of CSS mapping files (`*.css.map`) during an upload with drag and drop has been improved.	Media Store, SiteArchitect	5.2R7
CORE-4191	When editing content using the "InEdit" function in the CMS_INPUT_RADIOBUTTON input component (single selection from a displayed list), the options could be displayed incorrectly.	ContentCreator	5.2R13
CORE-4199	Optimized default contents of a rule definition after creation of a new template. The editor now initially contains opening and closing `<RULES>` tags.	Dynamic Forms, Template Development	5.2R7

ID	Description	Categories	Version
CORE-4208	Deleted features may now be removed from the FirstSpirit repository via an archival schedule action. Further information can be found in chapter "Modules: Corporate Content: ContentTransport: Archival of deleted feature collections".	Content Transport	5.2R7
CORE-4221	In rare cases, the tag "style" could be stored multiple times when saving format templates.	Developer	5.2R7
CORE-4228	As of the current FirstSpirit version, signing of FirstSpirit JAR files is carried out using SHA-256. Further information can be found in chapter "System: Signing with SHA-256".	FirstSpirit Administrator	5.2R7
CORE-4230	Corrected version information about standard components of the system module.	Server Administrator	5.2R7
CORE-4247	Improved Java compatibility during FirstSpirit installation on Linux.	FirstSpirit Administrator	5.2R7
CORE-4248	In "Online Documentation for FirstSpirit" (ODFS), improved display of the version information "Available since" for API methods of data types.	Developer	5.2R7
CORE-4257	Optimized highlighting and editing of values in the input component FS_INDEX.	ContentCreator	5.2R7
CORE-4259	Improved error message when uploading images with unmet criteria.	FirstSpirit API	5.2R7
CORE-4261	When using external logic in dynamic forms, setting a value in the input component CMS_INPUT_TEXT could cause erroneous behavior.	Dynamic Forms, Template Development	5.2R7
CORE-4262	Improvements related to the Template Wizard.	Template Wizard	5.2R7
CORE-4265	Optimized detection of invalid references in the input component FS_REFERENCE.	SiteArchitect	5.2R8

ID	Description	Categories	Version
CORE-4275	Optimized the method `reload(Element)` (JavaScript API, JavaScript object: `top.WE_API.Preview`), which is used to update part of a document.	ContentCreator	5.2R7
CORE-4280	Erroneous behavior could occur when the "pluggability" feature (Java Servlet Specification 3.0) was deactivated.	FirstSpirit Administrator	5.2R7
CORE-4289	In the input component CMS_INPUT_DOMTABLE, saving links could lead to erroneous behavior.	ContentCreator	5.2R7
CORE-4292	Optimized detection of duplicate module resources.	Isolated mode (BETA)	5.2R8
CORE-4307	Optimized detection of invalid references in the input component FS_REFERENCE.	ContentCreator	5.2R8
CORE-4314	Improved detection of rule infractions for links within the input components CMS_INPUT_LINK, CMS_INPUT_IMAGEMAP, and CMS_INPUT_DOM.	Dynamic Forms, SiteArchitect	5.2R8
CORE-4315	During a metadata search, malfunctions could occur when entering search terms.	Search, SiteArchitect	5.2R8
CORE-4317	Improved initialization of the class loader in SiteArchitect.	Isolated mode (BETA)	5.2R7
CORE-4320	Improved display of keyboard shortcuts in tool tips.	SiteArchitect	5.2R7
CORE-4328	The version history for datasets has been optimized.	Content Store, SiteArchitect, Version history	5.2R8
CORE-4338	In non-Webstart environments (Launcher), the menu entry "Switch Projects" was erroneously active.	SiteArchitect	5.2R7
CORE-4340	During generation an erroneous display could happen rarely when using the Tomcat web server.	ContentCreator	5.2R7
CORE-4388	Optimized copying of content into the FirstSpirit clipboard via the keyboard shortcut Ctrl + C .	Clipboard, SiteArchitect	5.2R10
CORE-4395	Modifying the input component FS_LIST via a script during generation could lead to erroneous behavior.	Generation	5.2R15
CORE-4411	Improved identification of `*.msg` files (e-mails in Microsoft Outlook) when uploading files via drag-and-drop.	Media Store, SiteArchitect	5.2R8

ID	Description	Categories	Version
CORE-4415	Restoring revisions resulted in a malfunction on pages if the child list had been changed by means of a previous restoration process.	SiteArchitect	5.2R9
CORE-4426	The CMS_INPUT_DOMTABLE input component has been optimized to take into account the `columnChange` parameter in the context menu.	SiteArchitect	2019-01
CORE-4432	In rare cases, after changing the repository type from "Berkley DB Java Edition V5" to "Berkley DB Java Edition V3", the conversion process may use more disk space than normal.	FirstSpirit Administrator, Repository	5.2R8
CORE-4455	Improved performance of client logging.	ServerManager, SiteArchitect	5.2R8
CORE-4466	When a feature with a data source is imported into a project, in which an invalid layer was defined, a corresponding error message is now shown.	Content Transport	2018-07
CORE-4473	Client logging has been optimized for the ServerManager.	ServerManager	5.2R13
CORE-4489	During an import into a target project, implicitly exported objects will now only be created in the target project if they are not present there and will no longer be updated if they are already present in the target project. Further information can be found in chapter "External Synchronization: Export: Explicitly and implicitly selected objects".	External synchronization	5.2R14
CORE-4494	Invocation of the context menu item "Corporate Content / Rebind original" on a format template could cause erroneous behavior.	Corporate Content, FirstSpirit Administrator, SiteArchitect, Template Store	5.2R7
CORE-4519	When editing media elements with the file name extension "config", saving the element erroneously led to the extension being changed.	Media Store, SiteArchitect	5.2R7

ID	Description	Categories	Version
CORE-4520	For new installations of FirstSpirit, the Jetty option "ForwardedRequestCustomizer" for evaluating information regarding reverse proxies will now be set by default.	Server Administrator	5.2R7
CORE-4534	File extensions can now be assigned to a desired MIME type using the new `mime.types.additional` parameter in the `fs-server.conf` configuration file. Further information can be found in chapter "Administration: Media: Assigning File Extensions to MIME Types".	FirstSpirit Administrator, Media Store	5.2R10
CORE-4541	With certain specific configurations, in rare cases, erroneous behavior could occur when updating the subscription in the target project.	Corporate Content	5.2R10
CORE-4543	In rare cases, erroneous behavior could occur when iterating through the objects of the interface `Index` (FirstSpirit Developer API, package `de.espirit.firstspirit.client.access.editor.`	Developer, FirstSpirit API	5.2R7
CORE-4551	The detection of changes while renaming the display name of an element in the edit mode has been improved.	SiteArchitect	5.2R13
CORE-4555	If meta files are missing (empty directory structures), an error message will be output if an export or an import is attempted, and the export/import will be prevented. If `deleteObsoleteFiles` is set to "true", an export will only log a warning. Further information can be found in chapter "External Synchronization: Detection of empty directory structures (missing meta files)".	External synchronization	5.2R14
CORE-4569	Changes to the name of a server-wide action template is now taken into account during use for references within project schedules.	ServerManager	5.2R14
CORE-4573	Erroneous behavior could occur when editing a language-dependent input component FS_CATALOG within a language-dependent input component FS_LIST (type DATABASE).	ContentCreator	5.2R7

ID	Description	Categories	Version
CORE-4575	In the input component FS_INDEX, dynamically populating a parameter in a query using rules could lead to erroneous behavior.	Dynamic Forms, SiteArchitect	5.2R8
CORE-4577	As of the current FirstSpirit version, it is possible to more precisely control indexing of referenced datasets. Further information can be found in chapter "Search: Controlling indexing of referenced datasets".	Content Store, Developer, FirstSpirit API, Indexing, Input Components, Performance, Search	5.2R12
CORE-4621	During generation of Advanced URLs, erroneous behavior could occur if a structure folder had a display name that contained a special character.	Generation	5.2R8
CORE-4637	In the input component CMS_INPUT_DOM, improved pasting of Word content from the clipboard.	ContentCreator	5.2R8
CORE-4644	Optimized persistence of fixed workspaces.	SiteArchitect	5.2R8
CORE-4653	Changed the default value of the method `setDeleteObsoleteFiles(boolean enable)` of the interface `ExportOperation` (FirstSpirit Developer API, package `de.espirit.firstspirit.store.access.nexport.` from `false` to `true` and implemented additional log output. Further information can be found in chapter "External Synchronization: Deletion of obsolete files and additional logging".	Developer, External synchronization, FirstSpirit API	5.2R7
CORE-4659	Erroneous behavior could arise after deleting an entry of the input component FS_CATALOG.	SiteArchitect	5.2R19
CORE-4663	When using the browser engine "Google Chrome" in the integrated preview, downloading a video in mp4 format could lead to erroneous behavior.	SiteArchitect	5.2R8

ID	Description	Categories	Version
CORE-4667	The method `getProblems` of the `ImportOperation.Result` interface (FirstSpirit Developer API, `de.espirit.firstspirit.store.access.nexport.` can be used to output problems that occurred during an import. If, during the process of distributed development, two developers create new elements with the same "UID", the GID ("Global ID") of the element will be updated So far, this update has had the log level "Warning" and was part of the log output of `getProblems`. The log level was changed to "Info" with the current FirstSpirit version. For this reason, this log message will no more appear in `getProblems` of the result (`ImportOperation.Result`).	Developer, External synchronization	5.2R7
CORE-4676	Erroneous behavior could occur when editing links in an input component CMS_INPUT_DOM which is contained within the form of an FS_LIST entry.	SiteArchitect	5.2R7
CORE-4681	The validation of language independent input components was improved.	ContentCreator, SiteArchitect	5.2R10
CORE-4698	Improvements of the LiveEdit functionality.	ContentCreator	5.2R19
CORE-4699	In rare cases, erroneous behavior could occur when loading the project.	SiteArchitect	5.2R8
CORE-4705	Improved display of available resolutions in the input component CMS_INPUT_IMAGEMAP.	ContentCreator	5.2R8
CORE-4712	Generation on a cluster node could lead to erroneous behavior.	FirstSpirit Administrator, Generation	5.2R9
CORE-4717	Use the **Customize layout** icon in the top right-hand corner to switch between the "Thumbnail" and "List view" views. Further information can be found in chapter "SiteArchitect: List view at folder level in the Media Store".	Editor, Media Store, SiteArchitect	5.2R13

ID	Description	Categories	Version
CORE-4726	The libraries of the "FirstSpirit BasicSearch" module have been updated.	FirstSpirit Administrator, Modules	5.2R9
CORE-4733	Improved performance of searches for invalid references.	Performance	5.2R17
CORE-4734	In the functionality "External Synchronization", exporting unmodified entities erroneously led to the associated metadata files being written anew.	External synchronization	5.2R7
CORE-4743	The cropping function for alternative pictures of a specific resolution was improved.	Media Store, SiteArchitect	5.2R9
CORE-4763	When importing datasets, it is now possible to distinguish between newly created and modified datasets by using the newly implemented method `getUpdatedEntities()` in the interface `ImportOperation.Result`. Further information can be found in chapter "External Synchronization: Import: Identification of new and modified datasets using API (interface "ImportOperation.Result")".	External synchronization	5.2R14
CORE-4780	In external synchronization, optimized the import of form default values.	External synchronization	5.2R8
CORE-4782	The display of rule violations has been improved.	ContentCreator, Dynamic Forms	5.2R9
CORE-4786	Closing a dialog that was defined via the interface `ShowFormDialogOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API) erroneously led to the entire page being refreshed.	ContentCreator	5.2R8
CORE-4790	Selecting a link in the integrated preview now reliably opens up the desired presentation channel.	SiteArchitect	5.2R19
CORE-4798	Respecting formated contents in the input components CMS_INPUT_DOM and CMS_INPUT_DOMTABLE was optimized.	Input Components, SiteArchitect	5.2R9

ID	Description	Categories	Version
CORE-4824	Using the "Google Chrome" browser within the integrated preview could lead to erroneous behavior after having changed the font size within the operating system.	Preview, SiteArchitect	5.2R9
CORE-4831	Some users experienced errors in ContentCreator sessions. The handling of `editorId` attributes is now improved.	ContentCreator	5.2R10
CORE-4834	Improvements related to signing of FirstSpirit JAR files.	FirstSpirit Administrator	5.2R8
CORE-4835	The selection of data sets has been optimized for the input component FS_DATASET.	ContentCreator	5.2R9
CORE-4840	Default values were erroneously not taken into account when importing with external synchronization.	External synchronization	5.2R8
CORE-4841	As of the current version of FirstSpirit, English-language stop words will be added to the search index during indexing. Further information can be found in chapter "SiteArchitect / ContentCreator: Optimized Search".	Editor, Search, SiteArchitect	5.2R18
CORE-4853	The current logging may be displayed in a separate window using the menu entry "View Log" in the menu "Help". Searching in the log messages has been improved.	ServerManager, SiteArchitect	5.2R9
CORE-4856	Erroneous behavior could occur while editing datasets.	SiteArchitect	5.2R10
CORE-4859	Erroneous behavior could arise during creation of portal entry points (FirstSpirit module "SAP Business Package for FirstSpirit").	Modules	5.2R20
CORE-4860	If only parts of the Page Content or Site Structure stores were exported from a source project, this erroneously led to these parts always being imported anew in the target project.	External synchronization	5.2R8
CORE-4863	Optimized evaluation of the option "Extended logging" (menu "Extras").	SiteArchitect	5.2R8

ID	Description	Categories	Version
CORE-4870	The parameters `jdbc.POOLMIN` and `jdbc.POOLMAX` can be used to specify values in the JDBC configuration of databases which define the number of available database connections reserved for each pool. The establishment and release of these connections was optimized.	FirstSpirit Administrator	5.2R9
CORE-4873	In repeat imports, elements that are both in a released state and unchanged in the target project were erroneously imported anew.	External synchronization	5.2R8
CORE-4882	The storage location of log messages for ServerManager and SiteArchitect can now be configured - server-wide for all users via the `fs-server.conf` using the parameter `CLIENT_HOME_DIR` or one of the operating-system specific parameters (e. g. `CLIENT_HOME_DIR_WINDOWS`) or user-specific via the corresponding parameters in the connection settings. Further information can be found in chapter "SiteArchitect / ServerManager: Configurable directory for log messages".	FirstSpirit Administrator, Server Administrator, ServerManager, SiteArchitect	5.2R10
CORE-4887	Improved evaluation of rules in child forms of the input components FS_LIST.	Dynamic Forms, SiteArchitect	5.2R11
CORE-4888 CORE-5268	In rare cases, pop-up dialogs were opened in the background when using the operating system macOS.	SiteArchitect	5.2R10
CORE-4893	Improved logging when rolling out packages.	Corporate Content	5.2R12
CORE-4910	In the current FirstSpirit version, updated internally used software (JDK in FirstSpirit Launcher). Further information can be found in chapter "System: Integrated Software".	Integrated software	5.2R12
CORE-4925	Editing a form using EasyEdit could lead to erroneous behavior.	ContentCreator	5.2R9
CORE-4935	Improved user interaction pattern of creating a dataset.	Content Store, ContentCreator	5.2R12

ID	Description	Categories	Version
CORE-4938	Improved display of errors of type "FATAL" in ServerMonitoring.	ServerMonitoring	5.2R12
CORE-4947	Improved update process for global web applications.	FirstSpirit Administrator, Modules	5.2R12
CORE-4948	Improved deployment of custom global web applications.	Server Administrator	5.2R12
CORE-4985	With special configurations, problems with the sort order for entries could arise in the FS_LIST input component.	Input Components, SiteArchitect	5.2R10
CORE-4989	The content of FirstSpirit JAR files is signed with a certificate. In the current FirstSpirit version, the content is signed with a new certificate that is valid until 2019-07-24 (24 July 2019). Further information can be found in chapter "General: Code signing certificate updated".	Webstart	5.2R9
CORE-5021	Displaying the change date of datasets in the overview and sorting by the date of the latest change have been improved.	SiteArchitect	5.2R13
CORE-5059	In "Health Center" (ServerMonitoring), checking for the update status of a FirstSpirit server could under certain preconditions lead to erroneous behavior.	Health Center	5.2R15
CORE-5060	For pop-up dialogues created via the `RequestOperation` interface (FirstSpirit Developer-API, Package `de.espirit.firstspirit.ui.operations`) the scrolling behavior was improved.	ContentCreator	5.2R10
CORE-5062	Optimized creation of features that include datasets in projects which do not work with releases ("autorelease mode").	Content Transport	5.2R10
CORE-5064	With the current FirstSpirit version, log messages for the browser engine used for the integrated preview are now also retained under `.firstspirit*/logs/SiteArchitect*.log`. Further information can be found in chapter "SiteArchitect: Logging the Integrated Preview (Browser Engines)".	SiteArchitect	5.2R10

ID	Description	Categories	Version
CORE-5072	Improved management of technical user sessions.	Sessions	5.2R12
CORE-5077	Starting with the current FirstSpirit version, the documentation of the FirstSpirit API is published additionally in separate Jar files. Further information can be found in chapter "General: Publication of FirstSpirit Javadoc via separate Jar files".	Developer, FirstSpirit API	5.2R9
CORE-5081	When releasing datasets with N:M relationships, erroneous behavior could occur.	SiteArchitect	5.2R10
CORE-5089	During every start of SiteArchitect or ServerManager, all `.firstspirit_*` directories in which no files were changed over the last 30 days will now be deleted. Further information can be found in chapter "Administration: Automatic deletion of files from local user directories".	Editor, FirstSpirit Administrator, ServerManager, SiteArchitect	5.2R15
CORE-5090	As of the current version of FirstSpirit, media constraints may be based upon either file name extensions or MIME type detection. Further information can be found in chapter "Administration: Media Constraints: MIME Type Detection".	FirstSpirit Administrator, Media Constraints, ServerManager	5.2R17
CORE-5106	The process of setting up the Launcher has been improved.	Launcher	5.2R10
CORE-5117	Temporal facets of search will now be evaluated correctly again.	ContentCreator, Search	5.2R12
CORE-5134	Improved consideration of breakpoints in the template debugger.	Developer, SiteArchitect	2018-11
CORE-5140	"External Synchronization" no longer updates/modifies database schemata for which the options "Read-only" and "No schema sync" are set.	External synchronization	5.2R14
CORE-5147	Optimized roll-out behavior of project-local web applications.	Server Administrator	5.2R17
CORE-5148	Under certain conditions, reports were erroneously displayed as inactive.	ContentCreator	5.2R10

ID	Description	Categories	Version
CORE-5156	During an import, dependencies will now be checked and the import will be aborted if this import would cause required missing dependencies in the target project. Further information can be found in chapter "External Synchronization: Import: Abort in case of required but missing objects".	External synchronization	5.2R14
CORE-5157	When transferring changes between projects with different language sets, using default values could erroneously lead to manually set values not being preserved.	Corporate Content	5.2R12
CORE-5158	Inserting formatted text when using the module "OfficeConnnect" has been improved.	Modules	5.2R10
CORE-5175	The method `installFeature(FeatureFile, LayerMapper)`, part of the interface `FeatureInstallAgent` (FirstSpirit Developer-API, Package `de.espirit.firstspirit.feature`), has been optimized.	Content Transport, External synchronization, FirstSpirit API	5.2R11
CORE-5182	From within a script, dialogs may be opened and forms may be displayed and modified using the FirstSpirit API. In this context, erroneous behavior could arise when setting values for the input component FS_REFERENCE.	Developer, SiteArchitect	5.2R12
CORE-5194	In the GOM implementation class `GomButton`, the type of the attributes `onClick` and `onDrop` has been changed from `String` to `GomButtonScriptReference`. Programmatic uses of this class may require modifications to their source code in order to observe this type change. Further information can be found in chapter "Module Development, Scripts, API: Changes to GOM implementation class "GomButton"".	Developer, FirstSpirit API, Input Components	5.2R14
CORE-5212	On the operating system Microsoft Windows, the parameter `WEBAPP_STAGING_PATH` in the file `fs-server.conf` no longer distinguishes between uppercase and lowercase characters in the path value.	FirstSpirit Administrator	5.2R12

ID	Description	Categories	Version
CORE-5219	As of the current version of FirstSpirit, the order in which datasets are displayed in and output by FS_INDEX components which are based on foreign key relationships can now be set by an editor. Further information can be found in chapter "Input components: FS_INDEX: Manually Sorting Datasets".	ContentCreator, Database, Input Components, SiteArchitect, Template Development	5.2R17
CORE-5223	As part of the refactoring for the module development in the so-called "Isolated mode" the integrated web server Jetty has been implemented as a module. Further information can be found in chapter "Administration: Isolated mode: Jetty web server is now also available as a module".	FirstSpirit Administrator, Integrated software, Isolated mode (BETA), Modules	5.2R13
CORE-5225	Improved behavior of the attribute `regex` of the `<MATCHES/>` tag in rules (functionality "Dynamic Forms").	Developer, Dynamic Forms, Template Development	5.2R12
CORE-5226	Improved installation process for features that contain datasets.	Content Transport	5.2R12
CORE-5229	The detection of the file to be imported has been optimized when using the Import project function.	FirstSpirit Administrator, Project export / import	5.2R13
CORE-5240	If a filtered data source is used in conjunction with an FS_DATASET input component and `selectorMode="list"`, this filter will now also be used for dataset searches in the selection dialog.	Input Components, Search, SiteArchitect	5.2R12
CORE-5244	Improved performance of preview calculation.	Preview	5.2R11
CORE-5247	Improved display of values of the input component CMS_INPUT_PERMISSION in metadata forms.	ContentCreator	5.2R10
CORE-5254	Editing document groups may have resulted in a malfunction.	Site Store, SiteArchitect	2018-08
CORE-5262	The performance when saving forms with many database references has been improved.	SiteArchitect	5.2R11

ID	Description	Categories	Version
CORE-5265	The evaluation of the configuration for the integrated preview has been improved.	SiteArchitect	5.2R14
CORE-5267	Optimized display of inherited metadata.	ContentCreator	2018-07
CORE-5270	In rare cases, erroneous behavior could occur when displaying the reference graph of a root node.	SiteArchitect	5.2R11
CORE-5273	In very rare cases, erroneous behavior could occur in Template Wizard.	Template Wizard	5.2R12
CORE-5274	Improved performance of storing and writing revision data.	Performance, Repository	5.2R12
CORE-5280	The logging has been improved when a rule ("dynamic forms") is erroneous.	Dynamic Forms	5.2R13
CORE-5281	In the input component CMS_INPUT_NUMBER, erroneous input will now trigger display of an error message.	SiteArchitect	5.2R16
CORE-5328	The current FirstSpirit version now archives revisions and tags whose tag name ends with the , such as revisions and tags created automatically during generation or other Scheduler entries. Further information can be found in chapter "Administration: Archiving: Tagged revisions are now partly taken into account".	Archiving, FirstSpirit API, FirstSpirit Administrator	5.2R13
CORE-5342	In very rare cases, it was possible that not all external references were observed during archiving.	Archiving	5.2R12
CORE-5360	Performance improvements related to use of the input component CMS_INPUT_COMBOBOX.	Input Components, SiteArchitect	5.2R11
CORE-5385	When restoring an old dataset version, 1:N relationships were erroneously not regarded.	Content Store	5.2R15
CORE-5398	Optimized roll-out of web applications during start-up of the FirstSpirit server.	FirstSpirit Administrator	5.2R15
CORE-5426	When using cluster generation, an error could arise if user-specific services were used.	Generation, Modules, Services	5.2R12

ID	Description	Categories	Version
CORE-5427	Improved deletion of elements for which edit mode is activated.	SiteArchitect	5.2R14
CORE-5433	Improved observation of own values in the input component CMS_INPUT_COMBOBOX (attribute `editable`).	Input Components, SiteArchitect	5.2R12
CORE-5445	Identification of objects now uses GIDs ("global IDs") instead of UIDs. This allows for better matching of objects from a source project to objects in a target project and thus more stable behavior when exporting and importing objects via the functionality "External Synchronization". Further information can be found in chapter "External Synchronization: External Synchronization: More stable identification of objects (using GIDs)".	Developer, External synchronization	5.2R12
CORE-5478	By implementing Data Access Plug-Ins, external sources can be integrated into FS_INDEX input components. The snippet display for referenced objects has been optimized.	ContentCreator	5.2R12
CORE-5488	Improved cookie behavior as regards the internal preview.	SiteArchitect	2018-08
CORE-5489	Improved evaluation of rules within the input component FS_LIST (type DATABASE).	Dynamic Forms, SiteArchitect	5.2R12
CORE-5496	In "Multi Perspective Preview" (MPP), optimized the layout of the integrated preview.	Multi Perspective Preview, SiteArchitect	5.2R15
CORE-5498	Optimized log messages of the browser engines used for internal preview.	SiteArchitect	5.2R12
CORE-5499	Generation on a cluster node could lead to erroneous behavior.	FirstSpirit Administrator, Generation	5.2R12
CORE-5513	Passwords in FirstSpirit configuration files can now be encrypted. Further information can be found in chapter "Administration: Encryption of passwords in FirstSpirit configuration files".	FirstSpirit Administrator, Security	5.2R16
CORE-5514	In very rare cases, not all values were copied when creating a copy of a dataset.	ContentCreator	5.2R12

ID	Description	Categories	Version
CORE-5533	The behavior of the HTTP header "X-Frame-Options" is now configurable for the FirstSpirit web applications `fs5root` (start page and SiteArchitect) and `fs5webmon` (ServerMonitoring). It can be controlled via the parameter `frameOptionsHeader` in the configuration file `fs-server.conf`. The new parameter changes the previous default behavior. If embedding of the FirstSpirit web applications (or LiveEdit) into frames of another host should be allowed or if such embedding should generally be prohibited, the configuration parameter must now be set to the appropriate value. Further information can be found in chapter "Security: Behavior of the HTTP header "X-Frame-Options" is now configurable for the FirstSpirit web applications fs5root and fs5webmon".	FirstSpirit Administrator, FirstSpirit home page, Security, Server Administrator, ServerMonitoring	5.2R12
CORE-5548	Improved performance related to media uploads.	ContentCreator, SiteArchitect	5.2R12
CORE-5550	When deleting elements using project-specific workflows, the database write protection was incorrectly not taken into account.	Database, Workflow	5.2R13
CORE-5551	In rare cases, erroneous behavior could occur when using ContentCreator in Apache Tomcat.	ContentCreator	5.2R12
CORE-5556	In very rare cases, erroneous behavior could arise during identification of the page template upon which the Project Settings page is based.	Global settings	5.2R12
CORE-5560	Creating a media folder in the Media Store has been improved.	ContentCreator	5.2R13
CORE-5588	Improved performance related to the use of many ACL databases.	Performance	5.2R12
CORE-5601	In rare cases, erroneous behavior could occur when opening the selection dialog of the input component FS_INDEX.	Input Components, SiteArchitect	5.2R13
CORE-5605	Improved start-up of Launcher with proxy settings.	Launcher, SiteArchitect	5.2R12

ID	Description	Categories	Version
CORE-5633	In SiteArchitect, using the keyboard shortcut Ctrl + Shift + F2 in the input components CMS_INPUT_DOM and CMS_INPUT_DOMTABLE will cause the contents of the input component to be written to the SiteArchitect client log with log level "info" (see menu item "Help / View log").	Input Components, SiteArchitect	5.2R18
CORE-5656	New method `getServiceConfig` in interface `ModuleAdminAgent`. Further information can be found in chapter "Module Development, Scripts, API: New method "getServiceConfig" in interface "ModuleAdminAgent"".	Developer, FirstSpirit API, Module development	5.2R12
CORE-5681	Malfunctions may have occurred when changing the project description in the project properties.	ServerManager	5.2R14
CORE-5686	If an external web application is to be used for the preview in FirstSpirit (a Single Page Application, "SPA", for example), the respective URL can be entered into the "External Preview URL" text field in the FirstSpirit ServerManager under "Project / Properties / ContentCreator settings". Further information can be found in chapter "Administration: Using preview applications in the ContentCreator (TPP)".	ContentCreator, FirstSpirit Administrator, Preview	5.2R16
CORE-5687	As of the current FirstSpirit version, it is possible to react via API to page navigation events in ContentCreator. Further information can be found in chapter "Module Development, Scripts, API: Reacting to page navigation events in ContentCreator".	ContentCreator, Developer, FirstSpirit API	5.2R13
CORE-5688	Security improvements related to generation.	Generation	5.2R15
CORE-5692	When archiving a project, contents of databases that were marked "read-only" were erroneously archived as well.	Archiving, Database, Tasks	5.2R12
CORE-5699	When browsing the "Deleted objects" dialog, malfunctions could occur if a project has been archived beforehand.	Archiving, SiteArchitect	5.2R13

ID	Description	Categories	Version
CORE-5700	Remote project configurations have been optimized to take account of deactivated projects.	Remote access	5.2R13
CORE-5704	In rare cases, erroneous behavior could occur while editing scripts.	SiteArchitect, Template Development	5.2R12
CORE-5723	In the input component FS_INDEX, improved the consideration of parameters from external data access plugins during auto-completion.	Template Development	5.2R19
CORE-5725	While editing list entries in the input components FS_CATALOG or FS_LIST, erroneous behavior could occur when using drag-and-drop from a report.	ContentCreator, Reports	5.2R13
CORE-5734	Improved behavior related to duplicate elements in a target project.	Corporate Content	2018-10
CORE-5742	Optimized loading of customer specific functions, which can be integrated via the FirstSpirit API (interface `JavaClientContextPluginsMenuItemsPlugin`, package `de.espirit.firstspirit.client.plugin`), using the context menu entry "Plug-ins".	SiteArchitect	2018-07
CORE-5744	Not maintaining language-dependent media for all languages could lead to malfunctions during the generation process.	Generation	5.2R13
CORE-5747	The server configuration layout has been improved.	ServerMonitoring	5.2R13
CORE-5750	As of the current version of FirstSpirit, the new interface `SearchIndexAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) allows project-specific configuration of indexing depth of referenced datasets. Further information can be found in chapter "Search: Project-specific configuration of indexing for referenced datasets".	Content Store, Developer, FirstSpirit API, Indexing, Input Components, Performance, Search	5.2R15
CORE-5753	Logging after a successful project export was improved.	Project export / import	2018-06

ID	Description	Categories	Version
CORE-5757	It is now not possible to import a project with a template set which is missing on the destination server. The import will fail. Further information can be found in chapter "Administration: Importing a project with missing presentation channel".	Project export / import	5.2R13
CORE-5758	In rare cases, erroneous behavior could arise in global search.	SiteArchitect	2018-09
CORE-5774	When creating a new dataset in a data source the consideration of the edit mode while saving has been improved.	SiteArchitect	5.2R13
CORE-5779	In the CMS_INPUT_DOM input component, formatting when adding tables has been improved.	ContentCreator	2018-08
CORE-5784	The behavior when creating new datasets in FS_DATASET and FS_INDEX with `DatasetDataAccessPlugin` has been improved. Further information can be found in chapter "SiteArchitect: FS_DATASET / FS_INDEX: Working with newly created datasets has been optimized".	Database, Developer, Input Components, SiteArchitect	2018-07
CORE-5785	As of the current FirstSpirit release, the IDs given in the release notes' issue tables reference a new, internally used tool. Further information can be found in chapter "General: IDs in FirstSpirit release notes".	Developer, Editor, FirstSpirit Administrator	2018-10
CORE-5792	In "External Synchronization", optimized observation of structure variables.	External synchronization	5.2R14
CORE-5825	Optimized evaluation of invalid references when saving datasets.	SiteArchitect	5.2R14
CORE-5828	In rules (templates), auto-completion mistakenly did not work at locations following a multi-line XML comment.	Template Development	5.2R17

ID	Description	Categories	Version
CORE-5829	Synchronizing group definitions which may be transported within the project properties has been improved.	External synchronization	5.2R13
CORE-5854	To identify a FirstSpirit element in a certain project language, a new function `previewId()` similar to the `editorId()` function has been introduced. The`editorId()` function has also been expanded to include an additional `details` parameter. An agent has been implemented as part of the API to analyze the return value. Further information can be found in chapter "Module Development, Scripts, API: Expansion of functions for communication between client-side Single Page Application (SPA) and ContentCreator (TPP)".	ContentCreator, Developer, FirstSpirit API, Module development, Preview, Template Development	5.2R16
CORE-5856	Multiple reflexive configurations for remote projects in a project could lead to erroneous behavior in the selection dialog of the input component FS_REFERENCE.	SiteArchitect	5.2R13
CORE-5858	The persistence of web components used in global web applications (fs5root, fs5preview, fs5staging, fs5webedit) after a server start has been improved.	FirstSpirit Administrator	5.2R13
CORE-5900	The current FirstSpirit version does not transmit information about layers used by the project anymore. Further information can be found in chapter "External Synchronization / Content Transport: Export of database schema information has been modified".	Content Transport, External synchronization	5.2R13
CORE-5901	Optimized consideration of invalid references during reference recalculation.	Content Store, FirstSpirit Administrator	5.2R17
CORE-5902	The rule evaluation in combination with the time of execution `ONSAVE` for the input component FS_LIST (Type SERVICE) has been optimized for ContentCreator.	ContentCreator, Dynamic Forms	5.2R13

ID	Description	Categories	Version
CORE-5912	When using Microsoft Internet Explorer, using special characters in the input component CMS_INPUT_DOM could cause erroneous behavior.	ContentCreator	2018-09
CORE-5917	Refreshing preview images in templates has been optimized for External Synchronization.	External synchronization	5.2R13
CORE-5918	Optimized synchronization of edit status between different views of the same dataset.	Content Store, SiteArchitect	5.2R14
CORE-5928	Selecting a different template for a page (context menu "Extras / Select another template") has been improved.	SiteArchitect	5.2R13
CORE-5935	Under Microsoft Windows, when using the Google Chrome browser engine, the required files were rolled out into a wrong user directory.	Preview	5.2R20
CORE-5941	With certain constellations of move, release, and delete actions, importing a previously deleted element anew could lead to erroneous behavior.	External synchronization	5.2R15
CORE-5948	Improved use of images in snippets in conjunction with user privileges.	SiteArchitect	5.2R18
CORE-5951	Deactivating the package property "Changeable" in a master project (removing write permissions) will now also be visualized in subscribing projects. Further information can be found in chapter "Modules: Corporate Content: Removal of write permissions in subscribing projects ("Changeable")".	Corporate Content	5.2R15
CORE-5977	Optimized the method `getFile(Language)` of the interface `Media` (package `de.espirit.firstspirit.access.store.mediastor` FirstSpirit Access API).	FirstSpirit API	2018-09

ID	Description	Categories	Version
CORE-5978	The new FirstSpirit Developer API interface `de.espirit.firstspirit.agency.ProjectMembersA` now provides access to information about users and groups of a project. Further information can be found in chapter "Module Development, Scripts, API: New API interface "ProjectMembersAgent" provides information about users and groups".	Developer, FirstSpirit API	5.2R15
CORE-5982	The display of search results containing quoted HTML code was optimized.	ContentCreator	5.2R19
CORE-6000	When trying to import a new schema into a project without specifying a suitable layer mapping, an error message is output. Additionally, the import will now also be aborted at the correct time.	External synchronization	5.2R14
CORE-6007	Optimized consideration of filters when using the global search.	Search, SiteArchitect	2018-07
CORE-6009	Recalculation of references has been optimized for slower systems.	FirstSpirit Administrator	5.2R16
CORE-6011	In rare cases, it was possible that the reference name of a node was not released after that node was deleted and the delete operation was released.	Release, SiteArchitect	5.2R15
CORE-6014	Optimized uploading of files of type `.json`.	SiteArchitect	5.2R14
CORE-6018	The display of controls has been optimized for use with Google Chrome browser in version 61 and higher.	ContentCreator	5.2R13
CORE-6019	In rare cases, erroneous behavior could arise during calculation of the page status.	ContentCreator	2018-09
CORE-6035	Optimized observance of validation errors when releasing a FirstSpirit element using the option "Check only - do not release".	Dynamic Forms, Release	5.2R15
CORE-6039	Optimized consideration of privileges which are defined on the data source when editing datasets in the input component FS_LIST (type DATABASE).	ContentCreator	5.2R17

ID	Description	Categories	Version
CORE-6042	When creating a new page via the dialog "Create new page", the name of the page can be added and edited only in the name area but not in the navigation area.	ContentCreator	5.2R15
CORE-6080	When using Drag & Drop to replace media contents (.css files), erroneous behavior could occur.	Media Store	5.2R21
CORE-6082	When using "isolated mode", subsequent changes to URLs in "URL Settings" were mistakenly not observed.	SiteArchitect	5.2R15
CORE-6104	New interface `UserStatisticsAgent` in the package `de.espirit.firstspirit.agency` (FirstSpirit Developer API). Further information can be found in chapter "Module Development, Scripts, API: Obtaining the most recent login date of a user via API".	FirstSpirit API	5.2R16
CORE-6107	Using the default URL mode when generating, file name extensions where not taken into account for the building of unique file names.	Generation	5.2R21
CORE-6114	Optimized storage handling during project archival. Further information can be found in chapter "Administration: Project archiving: Abort archival due to insufficient available storage space".	Archiving	5.2R15
CORE-6118	As of the current FirstSpirit version, FirstSpirit SiteArchitect requires at least 1024MB of free main memory, as opposed to the previously required 768MB. Further information can be found in chapter "General: Main memory requirements for FirstSpirit SiteArchitect".	FirstSpirit Administrator, Server Administrator	5.2R15

ID	Description	Categories	Version
CORE-6125	When running on the operating system macOS High Sierra (macOS version 10.13), erroneous behavior could occur during use of the integrated preview. An update of the integrated Chrome browser engine "JxBrowser" to version 6.15 corrected this issue. Further information can be found in chapter "System: Integrated software".	Preview, SiteArchitect	5.2R14
CORE-6136	When copying objects from a package in the destination project errors could occur, when the subscription was not marked as "changeable".	Corporate Content	5.2R19
CORE-6139	Optimization for mass data requests on datasets.	Database, Performance	5.2R16
CORE-6152	In very rare cases, SiteArchitect could be displayed in an erroneous fashion.	SiteArchitect	5.2R15
CORE-6162	Erroneous behavior could arise when deleting a folder in the Page Templates section of the Templates store.	SiteArchitect	5.2R18
CORE-6166	While displaying objects included in a feature, erroneous behavior could occur.	Content Transport	5.2R16
CORE-6170	The browser engine "JxBrowser", used to integrate "Google Chrome", has been updated to version 6.18. This corrected an issue which could occur during use of "Multi Perspective Preview" (MPP). Further information can be found in chapter "System: Updated third-party software".	Editor, Integrated software, Multi Perspective Preview, SiteArchitect	5.2R18
CORE-6175	Contents from metadata which are defined explicitly on a given element may now be output in snippet definitions using the new system object *#meta*. Further information can be found in chapter "SiteArchitect / ContentCreator: Snippets: Outputting Metadata".	Developer, Snippets	5.2R18
CORE-6176	Improvements of the module "FirstSpirit BasicSearch".	Isolated mode (BETA)	5.2R16

ID	Description	Categories	Version
CORE-6196	As of the current FirstSpirit version, FirstSpirit provides a new option related to project generation. In the generation schedule action, the option "Generate release version" now allows specification of whether the action should generate the release version (checkbox marked; default setting) or the current state (checkbox unmarked) of the project. Further information can be found in chapter "Administration: Schedule management, action "Execute generation": New setting - Generate release version or current state".	FirstSpirit Administrator, Generation, Release, ServerManager, Tasks	5.2R15
CORE-6202	Optimized rendering of the input component CMS_INPUT_PERMISSION.	ContentCreator	5.2R16
CORE-6220	In proprietary modules, circular dependencies will now be identified in a timely fashion and logged accordingly. Circular references remain unsupported.	Developer	5.2R15
CORE-6225	Optimized connection establishment to the cluster slave node after a restart of the cluster master server.	Clustering	5.2R16
CORE-6228	Clustering: In the current version of FirstSpirit, problems were resolved that could arise during activation of cluster nodes, especially following an update of the master server.	Clustering, Server Administrator, ServerManager	5.2R16
CORE-6242 CORE-4608 CORE-6553	As of FirstSpirit version 5.2R18, support for Java 9 (for FirstSpirit Server and Clients) will be part of the early access program. Further information can be found in chapter "System: Using Java 9 (EAP)".	FirstSpirit Administrator	5.2R18
CORE-6251	FS_INDEX: multiple selection possible in selection dialog Further information can be found in chapter "ContentCreator: FS_INDEX: multiple selection possible in selection dialog".	ContentCreator	5.2R20

ID	Description	Categories	Version
CORE-6268	FirstSpirit content can be generated via the `RenderingAgent` interface (package: `de.espirit.firstspirit.agency`, FirstSpirit Developer API). The interface enables a special generation for specific dynamic content to be controlled directly via the API. The `STRICT` render mode has been added to the latest FirstSpirit release. Further information can be found in chapter "Module Development, Scripts, API: RenderingAgent: Take information from higher-level contexts into account".	Developer, FirstSpirit API	2018-07
CORE-6314	In "External Synchronization", optimized observance of references to elements without UID.	External synchronization	5.2R15
CORE-6337	Optimized display of inner, multi-language forms in FS_LIST, FS_INDEX, and FS_CATALOG. Further information can be found in chapter "Input components: FS_LIST, FS_INDEX, FS_CATALOG: Optimization of Multi-Language Display".	Editor, Languages, SiteArchitect	5.2R19
CORE-6349	When moving several elements via drag-and-drop in the input component FS_LIST, the sort order was erroneously not observed.	SiteArchitect	5.2R15
CORE-6357	When the server was restarted, global customer-specific web applications were erroneously always rolled out anew.	ServerManager	5.2R16
CORE-6359	Optimized status display when updating a dataset using the functionality "ContentTransport".	Content Transport	5.2R16
CORE-6361	In (database) tables that had a self-referencing M:N relation (upon itself), the attributes were switched. In this case, queries returned erroneous results. For newly-created database schemata, this error was fixed. Further information can be found in chapter "General: Query: Erroneous query results related to self-referencing M:N relations".	Database, Input Components, Table templates, Template Store	2018-09

ID	Description	Categories	Version
CORE-6364	Optimized behavior when canceling an archival task.	Archiving	5.2R16
CORE-6367	When using Google Chrome as a browser engine for the integrated preview, opening selection dialogs could seldomly lead to erroneous behavior.	SiteArchitect	5.2R15
CORE-6375	Optimized roll-out of web applications during restart of the FirstSpirit server.	Server Administrator	5.2R16
CORE-6380	Improved performance of image media creation during feature installation.	Content Transport, Media Store	5.2R16
CORE-6386	The current FirstSpirit version provides new MBeans. Further information can be found in chapter "Administration: New MBeans".	FirstSpirit Administrator	5.2R15
CORE-6399	As of the current FirstSpirit version, the configuration possibilities for information displays in ContentCreator have been extended: `WE_API.Common.showMessage(String title, String text)` Further information can be found in chapter "Module Development, Scripts, API: ContentCreator: Extended configuration possibilities for information displays (WE_API)".	ContentCreator, Developer, FirstSpirit API	5.2R15
CORE-6415	As of the current FirstSpirit version, media may be converted between being language-dependent and language-independent via the API. Further information can be found in chapter "Module Development, Scripts, API: Making media language-dependent or language-independent via API".	FirstSpirit API, Media Store	5.2R16
CORE-6416	Improved refreshing of detail views (content projection page).	ContentCreator	5.2R19

ID	Description	Categories	Version
CORE-6424	The new interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) is available as of the current FirstSpirit version. Further information can be found in chapter "Module Development, Scripts, API: API Extension: RenderingAgent - Generating FirstSpirit content via API".	Developer, FirstSpirit API, Module development	5.2R15
CORE-6440	As of the current version of FirstSpirit, custom project properties ("custom properties") may now be synchronized using "FirstSpirit External Synchronization". Further information can be found in chapter "External Synchronization: Consideration of Custom Properties in External Synchronization".	External synchronization, FirstSpirit API	5.2R17
CORE-6447	In the input component CMS_INPUT_IMAGEMAP, certain conditions could lead to used images not being considered in the reference graph.	Input Components	5.2R15
CORE-6463	Optimized error handling for missing table templates of data sources.	ContentCreator	5.2R16
CORE-6485	When using the method `urlFactory(String)` of the interface `RenderingAgent.Renderer` (FirstSpirit Developer API, package `de.espirit.firstspirit.agency`), erroneous behavior could occur.	Developer	5.2R16
CORE-6497	With the current FirstSpirit version repository conversions from Oracle Berkeley DB version 3 to version 5 are executed faster. Further information can be found in chapter "Repository: Faster migration from Oracle Berkeley DB 3 to 5".	FirstSpirit Administrator, Integrated software, Performance, Repository, Server Administrator, ServerManager	5.2R16

ID	Description	Categories	Version
CORE-6504	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Update of libraries".	SiteArchitect	5.2R16
CORE-6511	Optimized consideration of start node information when updating a package that is changeable in the target project.	Corporate Content	2018-09
CORE-6519	Improved reconnection with the cluster slave server after restart of the cluster master server.	Clustering, Isolated mode (BETA)	2018-09
CORE-6526	The display of user sessions in FirstSpirit ServerMonitoring was intermittently erroneous due to incorrectly stored graph data. Further information can be found in chapter "Administration: FirstSpirit ServerMonitoring: Display of user sessions".	ServerMonitoring	5.2R16
CORE-6527	Optimized check for new FirstSpirit versions in the Health Center of FirstSpirit ServerMonitoring.	Health Center	5.2R18
CORE-6579	Newly created API functionality allows read access to a list of all SEO and short URLs defined in a project (interface `UrlAgent`, package `de.espirit.firstspirit.agency`, FirstSpirit Developer API). Further information can be found in chapter "Module Development, Scripts, API: UrlAgent: Read Access to SEO/ Short URLs of a Project".	Advanced URL, Developer, FirstSpirit API, Generation	2018-06
CORE-6589	Improved error message when trying to install a module without name.	FirstSpirit Administrator, ServerManager	2018-07
CORE-6597	In order to allow better problem analysis on workflows, logging was extended.	Workflow	5.2R18
CORE-6612	Optimized consideration of erroneous revision metadata during archiving.	Archiving, Backup	5.2R18

ID	Description	Categories	Version
CORE-6619	Different validation behavior for different languages. Further information can be found in chapter "SiteArchitect / ContentCreator: Different Validation Behavior for Different Languages".	Developer, Dynamic Forms, Editor, FirstSpirit API, Languages, ServerManager	5.2R19
CORE-6622	Misconfiguration of the Permission Service could lead to erroneous behavior.	Server Administrator	5.2R16
CORE-6630	In rare cases, referencing media in the FS_REFERENCE input component could lead to malfunctions.	SiteArchitect	2018-08
CORE-6635	The interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) supports remote links as well as of the current FirstSpirit version. Further information can be found in chapter "Module Development, Scripts, API: RenderingAgent supports remote links".	Developer, FirstSpirit API, Module development	5.2R16
CORE-6643	Improved e-mail dispatch.	SiteArchitect, Workflow	5.2R17
CORE-6645	The new interface `ReleaseOperation` in package `de.espirit.firstspirit.store.operations` (FirstSpirit Access API) makes it possible to release FirstSpirit elements via API on the server-side. The new interface also supports the release of multiple elements at once, as well as the release of datasets. Further information can be found in chapter "Module Development, Scripts, API: Releasing elements via API".	Database, Developer, FirstSpirit API, Release	2018-06
CORE-6647	Integrity checking of Jar files on FirstSpirit startup was improved.	Server Administrator	5.2R19
CORE-6662	Erroneous behavior could arise when displaying customer-specific filter parameters in the FS_INDEX selection dialog.	ContentCreator	5.2R21

ID	Description	Categories	Version
CORE-6667	Related to the functionality "Multi Perspective Preview" (MPP), improved scrolling behavior in the preview.	ContentCreator	5.2R18
CORE-6669	Performance improvements related to the integrated preview when using Google Chrome as browser engine.	Performance, SiteArchitect	5.2R17
CORE-6671	Under macOS, windows were in rare cases not opened in the foreground.	ServerManager, SiteArchitect	5.2R17
CORE-6679	Optimized method `getStartNodes()` of the interface `GenerateTask` (FirstSpirit Access API, package `de.espirit.firstspirit.access.schedule`).	Developer, FirstSpirit API	5.2R17
CORE-6697	Global system web apps can now also be retrieved with the new method `getGlobalWebApps(boolean includeSystem)` in the interface `ModuleAdminAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API). Further information can be found in chapter "Module Development, Scripts, API: Retrieving global system web apps".	Developer, FirstSpirit API, Module development	5.2R20
CORE-6698	Improved status display for released pages.	ContentCreator	5.2R19
CORE-6703	Erroneous behavior could occur in the display of customer-specific action buttons in the toolbar.	SiteArchitect	5.2R17
CORE-6704	Erroneous behavior could arise when changing action settings while the associated server schedule task was running.	ServerManager	5.2R19
CORE-6712	Optimized rule evaluation when using CMS_GROUP in subforms.	Dynamic Forms, SiteArchitect	2018-09
CORE-6719	Oracle Berkeley DB 7 can be used for project repositories as of the current FirstSpirit version. Further information can be found in chapter "Repository: Oracle Berkeley DB 7 (EAP)".	Repository	5.2R18

ID	Description	Categories	Version
CORE-6726	During import, duplicate style node definitions in a format template will now be removed.	Content Transport	5.2R21
CORE-6727	In rare cases, when restoring deleted objects, the dialog was not displayed.	SiteArchitect	5.2R17
CORE-6742	When using OpenJDK 8, erroneous behavior could arise during roll-out of web applications.	Server Administrator	5.2R17
CORE-6744	In the FirstSpirit ContentTransport Storage app, the dialog for configuration of the file system path can now be resized manually such that long paths, too, can be shown completely.	Content Transport, ServerManager	5.2R21
CORE-6790	Optimized permissions evaluation when viewing a section reference.	SiteArchitect	2018-11
CORE-6792	Security improvements in FirstSpirit ServerManager.	Security	5.2R17
CORE-6793	Security improvements in the Media Store in ContentCreator.	Security	5.2R17
CORE-6794	Security improvements for the search functionality in ContentCreator.	Security	5.2R17
CORE-6795	Security improvements in FirstSpirit ServerMonitoring.	Security	5.2R17
CORE-6796	Security improvements in FirstSpirit ServerMonitoring.	Security	5.2R17
CORE-6801	Erroneous behavior could arise when opening forms which are defined in schedule tasks.	Isolated mode (BETA)	5.2R20
CORE-6806	Changes regarding the class `AccessControlDb` (package `de.espirit.firstspirit.acl.db`). Please see Chapter 3.	Developer, FirstSpirit API, Modules	5.2R17
CORE-6819	Under macOS, windows were in rare cases not opened in the foreground.	ServerManager, SiteArchitect	5.2R18
CORE-6827	Improved updating of web applications.	FirstSpirit Administrator	2018-07
CORE-6829	In the database-linked input component CMS_INPUT_CHECKBOX, optimized display of checked values.	SiteArchitect	5.2R18

ID	Description	Categories	Version
CORE-6831	Optimized the compatibility module.	Isolated mode (BETA)	5.2R17
CORE-6843	Erroneous behavior could arise when streams were used in a service.	Module development	5.2R19
CORE-6844	Optimized method `install(InputStream, boolean)` of the interface `ModuleAdminAgent` (FirstSpirit Developer API, package `de.espirit.firstspirit.agency`).	Developer, FirstSpirit API	5.2R17
CORE-6848	Optimized consideration of FirstSpirit build number in the file `Project.xml` in order to improve mergeability.	External synchronization	5.2R18
CORE-6849	During export, unmapped IDs will now be logged with a warning.	External synchronization	5.2R18
CORE-6851	Intermittently, references between the API documentations for FirstSpirit Access API and FirstSpirit Developer API were not rendered correctly.	Developer, FirstSpirit API	5.2R17
CORE-6868	Improved error detection.	Isolated mode (BETA)	2018-09
CORE-6878	For image maps (CMS_INPUT_IMAGEMAP), areas with links can now be set via API as well (interface `ImageMapAgent`). Further information can be found in chapter "Module Development, Scripts, API: Image Map: Setting Areas With Links Via API (Interface "ImageMapAgent")".	Developer, FirstSpirit API, Input Components	5.2R21
CORE-6894	The latest version of FirstSpirit provides a conversion tool (currently still the Early Access Program ("EAP")) that can be used for the simple conversion of all data stored in Berkeley DBs on existing FirstSpirit servers to Berkeley DB 7 format by entering just a few commands in the command line ("project repositories" and "internal repositories"). Further information can be found in chapter "Administration: Conversion of the Oracle Berkeley DB (EAP)".	FirstSpirit Administrator, Integrated software, Repository	5.2R19
CORE-6903	Related to the functionality "FirstSpirit ContentTransport", a meaningful error message will now be displayed if elements of the Templates store cannot be added to the feature.	Content Transport	5.2R18

ID	Description	Categories	Version
CORE-6920	Optimized editing of the configuration file for server start options (`fs-wrapper.conf`) via ServerMonitoring.	Isolated mode (BETA)	5.2R18
CORE-6937	Performance optimizations related to loading database-based content.	Performance	5.2R18
CORE-6945	Optimized method `getOperation(OperationType<P>)` in interface `OperationAgent` (FirstSpirit Developer API, package `de.espirit.firstspirit.agency`).	FirstSpirit API	5.2R18
CORE-6946	An error has been fixed which could lead to incorrect evaluation of group and user information in ContentCreator forms which were opened using the interface `ShowFormDialogOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API). Further information can be found in chapter "Module Development, Scripts, API: Extended functionality for FS_BUTTON scripts".	Developer, FirstSpirit API	5.2R18
CORE-6951 CORE-6956	As of the current version of FirstSpirit, the interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) also supports passing of FirstSpirit templates and thus the opportunity to render output channel source code as desired. Furthermore, you can now determine whether or not project settings (in FirstSpirit SiteArchitect under "Global settings") should be considered during generation. Further information can be found in chapter "Module Development, Scripts, API: Extension of the interface "RenderingAgent"".	FirstSpirit API	5.2R18
CORE-6954	In some rare cases, URLs created with the `RenderingAgent` for media from the same project and from remote projects were not correct.	Generation, Template Development	5.2R19

ID	Description	Categories	Version
CORE-6955	Erroneous behavior could occur when using the ContentCreator JavaScript API in combination with the RenderingAgent and the fsbutton(...) function.	ContentCreator, FirstSpirit API, Template Development	5.2R19
CORE-6973	Erroneous behavior could arise when displaying related elements.	ContentCreator	5.2R18
CORE-6978	In rare cases, display of the "favicon" of the FirstSpirit start page was erroneous.	FirstSpirit home page	5.2R18
CORE-6980 CORE-7032	As of FirstSpirit version 5.2R18 the module `fs-jetty.fsm` can also be used with FirstSpirit servers that are not operated in "isolated mode" but in "legacy mode". Further information can be found in chapter "System: Using Jetty as a module (EAP)".	FirstSpirit Administrator, Integrated software, Modules, ServerManager	5.2R18
CORE-6982 CORE-6331	Improved visualization of modified sections.	ContentCreator	5.2R18
CORE-6984	The updating of web applications was improved.	FirstSpirit Administrator	2018-07
CORE-6987	Improved performance when starting the FirstSpirit server in Isolated mode.	Isolated mode (BETA)	2018-08
CORE-6988	The interface `ScheduleStorage` (package `de.espirit.firstspirit.access.schedule`, FirstSpirit Access API) was extended with the method `createScheduleEntry(String name, Project project)`, and the privilege evaluation for creation of schedule entries via the method `createScheduleEntry(String)` was improved. Further information can be found in chapter "Module Development, Scripts, API: Extension of the interface "ScheduleStorage"".	FirstSpirit API, FirstSpirit Administrator	5.2R18

ID	Description	Categories	Version
CORE-6991	It is now also possible to use the CMS_INPUT_IMAGEMAP input component for uploading media using drag-and-drop. Further information can be found in chapter "Input components: CMS_INPUT_IMAGEMAP can obtain an additional "upload" attribute".	ContentCreator, Developer, Editor, Input Components, Media Store, SiteArchitect	5.2R21
CORE-6994	Optimized installation of FirstSpirit servers in *Isolated mode* ("RISO") on Linux operating systems as the `root` user.	Isolated mode (BETA), Server Administrator	5.2R18
CORE-6996	In rare cases, erroneous behavior could arise when editing contents of an FS_LIST (type DATABASE) input component.	SiteArchitect	5.2R18
CORE-6997	Optimized display of the page status which can be visualized using the plugin `WebeditStatusNotePlugin`.	ContentCreator	5.2R18
CORE-7002	When generating pages in a ContentCreator context via the interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API), subsessions will now be considered.	Developer, FirstSpirit API	5.2R18
CORE-7016	The FirstSpirit server allows creation of several LDAP configurations (so-called "sections"). Each section contains at least one entry for an LDAP server which provisions LDAP data. If a server fails or takes too long to answer (>30 seconds), timeouts (of the LDAP connection and of login to the root web application) may arise. The time span after which a timeout occurs may now be increased via the parameters `web.login.timeout` and `LDAP.TIMEOUT` (default value: `30`). Further information can be found in chapter "Administration: New Configuration Opportunity for Timeouts in LDAP Sections and for Login to the Root Web Application (fs-server.conf)".	FirstSpirit Administrator, ServerManager	5.2R20
CORE-7023	Erroneous behavior could arise when releasing a page reference via a workflow while edit mode was active on the associated page.	SiteArchitect	2018-10

ID	Description	Categories	Version
CORE-7032 CORE-6980	Eliminated problems when using the internal Jetty	FirstSpirit Administrator, Integrated software	5.2R18
CORE-7036 CORE-6825 CORE-7037 CORE-7245	Rebrush for FirstSpirit graphical user interfaces: improvements and optimizations. Further information can be found in chapter "SiteArchitect / ContentCreator: Rebrush for FirstSpirit graphical user interfaces".	ContentCreator, FirstSpirit home page, SiteArchitect	5.2R19
CORE-7056	For files whose MIME type cannot be recognized (e. g. files with the file extension "rfa" or "oft"), the file extension "doc" was mistakenly used. In the FirstSpirit configuration file "fs-server.conf", corresponding MIME types can be defined for certain file types (e. g. "mime.types.additional=application/octet-stream:rfa; application/octet-stream:oft"), in case automatic detection is not possible. Temporarily, this information was not correctly taken into account when importing into the media management system.	Generation	5.2R19
CORE-7066	Optimized schedule management. Further information can be found in chapter "Administration: Optimization in Schedule Management".	FirstSpirit Administrator, ServerManager, Tasks	5.2R18
CORE-7067	New API for password encryption Further information can be found in chapter "Module Development, Scripts, API: Interface "PasswordAgent": encrypt passwords through the API".	FirstSpirit API, FirstSpirit Administrator, Security	5.2R19
CORE-7069	Optimized interpretation of configuration files of "PermissionService" (module "Permission").	Modules	5.2R20
CORE-7070	Optimized parameters for garbage collector logging of FirstSpirit server.	Developer	5.2R18
CORE-7081	Erroneous behavior could arise when opening module configuration dialogs.	FirstSpirit Administrator, ServerManager	5.2R18

ID	Description	Categories	Version
CORE-7088	When deleting sections no new version (entry in the version history) was created, erroneously.	ContentCreator	5.2R19
CORE-7091	There are now additional setting options for the FirstSpirit start page. Applications can be shown or hidden via groups / permissions on the start page. Further information can be found in chapter "SiteArchitect / ServerManager: Configuration of the FirstSpirit start page".	FirstSpirit Administrator, FirstSpirit home page, Server Administrator, ServerManager	5.2R19
CORE-7101	Erroneous behavior could arise when recursively calling the method `render()` of the interface `RenderingAgent.Renderer` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API).	Developer	5.2R18
CORE-7105	Improved initialization of remote logging for web applications when using an external Jetty web server or the Jetty module.	Server Administrator	5.2R19
CORE-7113	When using Microsoft Internet Explorer 11, displaying EasyEdit buttons could have been erroneous.	ContentCreator	5.2R19
CORE-7120	After installing web applications or web components, web servers will now be activated automatically. Further information can be found in chapter "Administration: Web server configuration: web servers will now be activated automatically".	FirstSpirit Administrator, ServerManager, Web server	2018-09
CORE-7148	New method `createDataset()` in the interface `DatasetProvider` (package `de.espirit.firstspirit.access.store.contents` FirstSpirit Access API) Further information can be found in chapter "Module Development, Scripts, API: Interface "DatasetProvider": Creating a new dataset".	Content Store, Developer, FirstSpirit API	5.2R19
CORE-7152	Optimized consideration of changes in connection settings.	FirstSpirit home page	5.2R18
CORE-7153	Optimized display of action names in the keyboard shortcut list (menu: "Help / Keyboard shortcuts").	SiteArchitect	5.2R18

ID	Description	Categories	Version
CORE-7166	The module providing the web server "Eclipse Jetty" (currently in the Early Access Program ("EAP")) now supports encrypted connections via HTTPS. Configuration of the required keystore is done by using the configuration dialog of the module in ServerManager. Further information can be found in chapter "Administration / Modules: HTTPS Support for the Module "Eclipse Jetty" (EAP)".	FirstSpirit Administrator, Modules	5.2R19
CORE-7184	Deletion of the search index (`~firstSpirit\data\projects\project_123\index`) when executing the schedule "Rebuild search index" has been modified.	FirstSpirit Administrator, ServerManager, Tasks	5.2R19
CORE-7186	Expansion of the log file to include audit functions. Further information can be found in chapter "Administration: Expansion of the log file to include audit logging".	Server Administrator, ServerManager, ServerMonitoring	2018-08
CORE-7188	The editing of nested data in content projections has been improved. Moreover, when creating list entries in FS_CATALOG, FS_INDEX or FS_LIST (with type DATABASE or INLINE) via so called "NewListEntryExecutables" (`de.espirit.firstspirit.webedit.server.executables.NewListEntryExecutable`, see also *FirstSpirit Online Documentation*, "Template development / ContentCreator / Functional scope"), the corresponding preview page will be refreshed (instead of showing the preview page which is defined for the related table template).	ContentCreator	5.2R19
CORE-7214	Optimized evaluation of restrictions when searching in the selection dialog of an input component (e.g. FS_REFERENCE).	ContentCreator	5.2R19

ID	Description	Categories	Version
CORE-7219	For new actions, the option "Execute even in case of error" is turned off by default. Further information can be found in chapter "Administration: Schedule Tasks: Option "Execute even in case of error" is turned off by default".	FirstSpirit Administrator, ServerManager, Tasks	5.2R19
CORE-7231	The display of the FirstSpirit startpage in Microsoft Internet Explorer 10 has been improved.	FirstSpirit home page	5.2R19
CORE-7237	Adjusted cluster configuration (files `fs-wrapper.slave.conf` and `fs-wrapper.isolated.slave.conf`) for Java 9.	Clustering, FirstSpirit Administrator	5.2R19
CORE-7244	The display in Microsoft Internet Explorer 10 has been improved.	ContentCreator	5.2R19
CORE-7246	Erroneous behavior could arise when inputting a time into the input component CMS_INPUT_DATE if the FirstSpirit server was configured with a different time zone than that of the client in which the time input was carried out.	ContentCreator	5.2R20
CORE-7251	Under rare circumstances a rule violation was erroneously displayed in the FS_CATALOG input component.	Dynamic Forms, Input Components	5.2R21
CORE-7265	An error could occur in the ContentCreator when using the module "FirstSpirit Security".	FirstSpirit Administrator, Modules	5.2R19
CORE-7300	Improved behavior related to updating modules in web applications.	FirstSpirit Administrator, Isolated mode (BETA)	2018-11
CORE-7303	The installation of local feature files has been improved.	Content Transport	5.2R20
CORE-7334	Fixed a problem with the possible use of illegal filenames in the repository back-end under Windows.	FirstSpirit Administrator, Repository	5.2R19
CORE-7348	The use of SEO URLs in conjunction with parallel generation actions has been improved.	Tasks	5.2R20

ID	Description	Categories	Version
CORE-7366	When using the ACL database, erroneous behavior could arise in rare cases during a generation when the according generation task was aborted via FirstSpirit ServerMonitoring.	FirstSpirit Administrator, Generation	2018-10
CORE-7368	With the latest FirstSpirit release, the parameters of the wrapper files `fs-wrapper-j#.include.conf` can – like the default wrapper file `fs-wrapper.conf` – also be edited via FirstSpirit ServerMonitoring. Further information can be found in chapter "Administration: Java-version-specific wrapper files can be edited via ServerMonitoring".	FirstSpirit Administrator, Server Administrator, ServerMonitoring	2018-07
CORE-7369	When using the Jetty module, the handling of web applications was optimized when restarting the server.	Server Administrator	5.2R20
CORE-7381 CORE-7644 CORE-7656	Various improvements have been made to the conversion tool provided with FirstSpirit version 5.2R19. This tool can be used for the simple conversion of all data stored in Berkeley DBs on existing FirstSpirit servers to Berkeley DB 7 format by entering just a few commands in the command line, and it is still in "EAP" state (early access program). Further information can be found in chapter "Administration: Conversion of the Oracle Berkeley DB (EAP)".	FirstSpirit Administrator, Integrated software, Repository	5.2R20
CORE-7388	User principals were not correctly regarded when using multiple login modules in sequence.	FirstSpirit Administrator	5.2R20
CORE-7389	Performance improvement when loading pages with a high number of nested input components in projects with multiple languages.	SiteArchitect	2018-07
CORE-7399	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software	5.2R19

ID	Description	Categories	Version
CORE-7407 CORE-7423 CORE-7433 CORE-7570	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software	5.2R20
CORE-7408	Optimized adoption via API of values in the input component FS_CATALOG between projects with different language sets.	SiteArchitect	5.2R20
CORE-7409	Optimized refresh of the integrated preview when switching between languages while editing inner entries of the input component FS_CATALOG.	Preview, SiteArchitect	5.2R20
CORE-7422	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software, Media Store, SiteArchitect	2018-06
CORE-7432	Elements of the `WebeditStatusNotePlugin` may have been displayed incorrectly when activating Multi Perspective Preview (MPP).	ContentCreator	5.2R19
CORE-7454	The option "All permissions" for modules is better accounted for.	Isolated mode (BETA)	5.2R19
CORE-7469	New TPP-API functions improve ContentCreator integration of TPP WebApps. Further information can be found in chapter "Module Development, Scripts, API: New functions in "WE-API"".	Developer, FirstSpirit API, Module development, Modules	5.2R20
CORE-7470 CORE-7623	Berkeley DB 7 now checks for sufficient available storage space and prohibits further write operations if storage space is insufficient. Further information can be found in chapter "Repository: Berkeley DB 7: Optimizations".	Integrated software, Repository, Security	5.2R20
CORE-7491	In ContentCreator, erroneous behavior could arise in the display of preview images in editing dialogs.	Isolated mode (BETA)	5.2R20

ID	Description	Categories	Version
CORE-7517	The identification of the java version which is used by FirstSpirit was optimized.	Integrated software	5.2R20
CORE-7520	With the current FirstSpirit version you can, using the "WE_API", register for events that are fired when creating a new page, when changing the navigation, or when using workflows within the current session. Further information can be found in chapter "Module Development, Scripts, API: "WE_API" has new events".	Developer, FirstSpirit API, Module development, Modules	5.2R20
CORE-7528	Design touch-ups and optimizations related to SiteArchitect.	SiteArchitect	5.2R20
CORE-7532 CORE-7381	When publishing via the FirstSpirit publication servlet (module: "FirstSpirit Security"), an error message is now output if the target side attempts to communicate with an unusable access control database. Use of this change requires an update of the module "FirstSpirit Security" in the web application on the target side. Further information can be found in chapter "Modules: Security: Improved Problem Recognition When Accessing an Access Control Database".	Modules, Security, Server Administrator, ServerManager	5.2R20
CORE-7563	Berkeley DB Java Edition V7 is now used automatically as default for new and imported projects. (The *FirstSpirit Manual for Administrators* has not yet been updated at the relevant location: it still assumes that version 5 is used by default (Chapter "FirstSpirit ServerManager / Project properties / Repository"). The text segment will be adapted as of the next publication.)	FirstSpirit Administrator, Repository	5.2R21
CORE-7572	In cluster operations, improved use of write-protected mounted directories.	Clustering	5.2R20
CORE-7595	In partial generation, selection of start nodes now uses the current state of the project. Further information can be found in chapter "Administration: Action "Execute generation": Selection of start nodes for partial generation".	FirstSpirit Administrator, Generation, ServerManager	2018-09

ID	Description	Categories	Version
CORE-7601	The module `fs-jetty.fsm` is available as system module as of the current FirstSpirit version. Further information can be found in chapter "Administration: Web server "Jetty" is now system module".	FirstSpirit Administrator, Integrated software, Modules, Server Administrator, ServerManager	5.2R20
CORE-7611	With the new `webedit.sendScriptCauseToClient` switch in `fs-server.conf`, debugging can be extended specifically on development servers in FirstSpirit ContentCreator. Further information can be found in chapter "Administration: Extending debugging in FirstSpirit ContentCreator".	ContentCreator, Server Administrator, Third Party Preview (TPP)	2018-07
CORE-7613 CORE-8439	Internal software has been updated in the latest FirstSpirit version. Further information can be found in chapter "System: Integrated software".	Integrated software	2018-08
CORE-7614	Optimized behavior of the input component CMS_INPUT_DOM when working with links.	ContentCreator	2018-09
CORE-7615	Erroneous behavior could arise during project export and import.	Project export / import	5.2R20
CORE-7622	Erroneous behavior could arise when uploading images with Exif data that contained special characters.	Media Store, SiteArchitect	2018-09
CORE-7656	Further optimizations have been made to the "BerkeleyUtil" (`BerkeleyUtil.jar`) conversion tool in the latest FirstSpirit version. Further information can be found in chapter "Administration: Further optimizations to "BerkeleyUtil"".	FirstSpirit Administrator, Integrated software	5.2R21
CORE-7660	Erroneous behavior could arise during output of nested data in content projections via "$CMS_VALUE(_dataset.formData)$".	Developer	5.2R20

ID	Description	Categories	Version
CORE-7668	Improved display of titles in forms in FirstSpirit SiteArchitect. Further information can be found in chapter "SiteArchitect: Display of titles in forms".	Developer, Editor, Input Components, SiteArchitect, Template Development	2018-07
CORE-7669	In the preview, erroneous behavior could arise due to links pointing at IDs within the current document (`<a href="#...">`).	Preview, SiteArchitect	2018-06
CORE-7670	Optimized consideration of preferred display language in workflow forms.	SiteArchitect, Workflow	5.2R20
CORE-7679	Erroneous behavior could arise when jumping to a template (within a `CMS_RENDER` statement) via Ctrl + LEFT CLICK .	Developer	5.2R20
CORE-7691	When installing a feature erroneous behavior could occur under certain circumstances.	Content Transport, External synchronization	5.2R21
CORE-7702	Under Microsoft Windows the rendering of the Khmer language (Cambodian) in input components was improved.	SiteArchitect	2018-07
CORE-7703	Optimized permission management in the interface `ModuleAdminAgent` (FirstSpirit Developer API, package `de.espirit.firstspirit.agency`).	FirstSpirit API, Permissions	5.2R20
CORE-7721	The input components FS_CATALOG and FS_INDEX have been extended with new functionality. Further information can be found in chapter "SiteArchitect: New functionality for FS_CATALOG and FS_INDEX".	Editor, Input Components, SiteArchitect	2018-10
CORE-7724	Optimized error handling for syntactically incorrect regular expressions (e.g. when searching within an output channel).	Developer	5.2R20
CORE-7725	Improved synchronisation when contents are deleted from CMS_INPUT_LINK input components in the source project.	Corporate Content	2018-06
CORE-7727	Under rare circumstances erroneous behavior could occur when executing the project schedule "Repair references".	Tasks	5.2R21

ID	Description	Categories	Version
CORE-7739	The input component CMS_INPUT_DOMTABLE could show a misbehaviour when opening the cell properties.	ContentCreator	2018-08
CORE-7751	Project re-import after repeated project exports was improved.	Archiving	5.2R21
CORE-7756	When `Del` was pressed in a text field in the integrated preview, the page was deleted by mistake.	SiteArchitect	2019-01
CORE-7758	The processing of access rights when displaying an FS_LIST input component (type PAGE) was improved.	SiteArchitect	2018-07
CORE-7778	Erroneous behavior could occur when creating of deactivating template sets.	ServerManager	2018-07
CORE-7805	The name of a FirstSpirit version can now be read out via the API with the new `getReleaseName();` method in the `ServerInformationAgent` interface (`de.espirit.firstspirit.agency` package, FirstSpirit Access API). Further information can be found in chapter "Module Development, Scripts, API: Read out FirstSpirit version name via API".	Developer, FirstSpirit API	2018-06
CORE-7820	Optimized several system messages in the language "German".	ContentCreator, SiteArchitect	5.2R21
CORE-7824	Improved internal date format in reports.	Java	5.2R21
CORE-7826	Improved updating of web applications on the server "Jetty Web Server" (system module).	FirstSpirit Administrator	2018-07
CORE-7829	Cleanup of the repository files during archiving has been improved.	Archiving	2018-06
CORE-7830	When using the "JettyService" erroneous behavior could occur on FirstSpirit server shutdown.	FirstSpirit Administrator, Services	5.2R21
CORE-7836	The updating of web apps when using the Jetty module was improved.	Modules	5.2R21

ID	Description	Categories	Version
CORE-7841	With the current version of FirstSpirit, the discontinued "Internet Explorer" variant for the "integrated preview" in FirstSpirit SiteArchitect is no longer supported. The current BETA version "Internet Explorer (BETA)" is being released to replace it. The menu entry has been changed to "Internet Explorer" and the "Internet Explorer (BETA)" menu item has been removed from SiteArchitect. Further information can be found in chapter "SiteArchitect: Browser integration: "Internet Explorer"".	Integrated software, SiteArchitect	5.2R21
CORE-7869	Security improvements in FirstSpirit ServerMonitoring.	Security	5.2R21
CORE-7878	As of the current release of FirstSpirit, when creating new projects, the default setting for use of the integrated database "Apache Derby" has been changed to "off" (inactive). Further information can be found in chapter "Administration: Database Handling: Internal Derby database will no longer be used by default in newly created projects".	Database, Developer, FirstSpirit Administrator, Server Administrator, ServerManager	2018-06
CORE-7879	Optimized visualization of selected values in the database-driven input component CMS_INPUT_CHECKBOX.	ContentCreator	2018-06
CORE-7882	When importing a feature an error could occur, when a database schema in the source project and a special element in the destination project had the same ID.	Content Transport	5.2R21
CORE-7883	Improved performance when loading contents from nested form elements (FS_CATALOG, FS_LIST).	ContentCreator	5.2R21
CORE-7919	For existing FirstSpirit installations that use Oracle Java 9 or higher, the wrapper file containing the start parameters for Java 9 and higher (file `fs-wrapper-j2.include.conf` by default) should be modified manually. Further information can be found in chapter "Administration: "Attach log files:" in schedules where e-mail is sent".	FirstSpirit Administrator, Java, Tasks	5.2R21

ID	Description	Categories	Version
CORE-7927	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software, Launcher	5.2R21
CORE-7928	Berkeley version 7 is now the default for new FirstSpirit installations. Further information can be found in chapter "Administration: Berkeley: Default for new FirstSpirit installations is now version 7".	FirstSpirit Administrator, Integrated software, Repository	2018-06
CORE-7932	`NewSectionExecutable` is now supported for use with Global Content. Further information can be found in chapter "ContentCreator: "NewSectionExecutable": Support for Global Content".	ContentCreator, Developer, Editor, FirstSpirit API, Template Development	2018-06
CORE-7936	Erroneous behaviour could occur when restoring pages.	Java	2018-06
CORE-7950	Editing queries may have resulted in a malfunction when adding a new column.	SiteArchitect	2018-08
CORE-7952	Performance improvements related to the loading of datasets.	Performance, SiteArchitect	2018-07
CORE-7957	When using CRC deployment (module "FirstSpirit Security") errors could occur.	Modules	5.2R21
CORE-7958	The display of errors in the preview (Context menu "Extras / Show preview errors") has been optimized.	SiteArchitect	2018-08
CORE-7960 CORE-1296 CORE-7961	With the latest FirstSpirit release, access control can be implemented for the data from the "DataAccess plug-in". Further information can be found in chapter "Module Development, Scripts, API: DataAccess plug-in: Implementing access control for data".	ContentCreator, Data Access Plug-In, Developer, Editor, Input Components, Module development, SiteArchitect	2018-08

ID	Description	Categories	Version
CORE-7972	New users were being incorrectly prevented from using a project in ContentCreator despite having been assigned sufficient permissions.	ContentCreator	2018-07
CORE-7985 CORE-7982	Security improvements in access control.	Security	5.2R21
CORE-7992	Optimized handling of module resources.	Isolated mode (BETA)	2018-09
CORE-7996	ContentCreator dialogues were not always closing as expected, when using FirstSpirit Third Party Preview (TPP).	ContentCreator	5.2R21
CORE-8003	The "Legal notices" for the licence and for third party software used in FirstSpirit were improved.	FirstSpirit home page	5.2R21
CORE-8006	Security improvements related to user management.	FirstSpirit Administrator, Security	2018-06
CORE-8015	Improved validation behavior related to nested CMS_INPUT_IMAGEMAP input components in projects with many languages.	SiteArchitect	2018-06
CORE-8021	Display of the project icon has been corrected in the project properties dialogue.	ServerManager	5.2R21
CORE-8023	When calling PermissionService from a schedule enty (e.g. `permServ=context.getConnection().getService(`) erroneous behavior could occur.	FirstSpirit Administrator	2018-07
CORE-8049	When using an external application server (Apache Tomcat, Jetty-Modul, ...), where FirstSpirit web applications are automatically installed as WAR files, updating FirstSpirit (e.g. to version 2018-06) can cause problems. Further information can be found in chapter "Administration: Possible problems when updating FirstSpirit with external application servers".	FirstSpirit Administrator	2018-06

ID	Description	Categories	Version
CORE-8054	The content of FirstSpirit JAR files is signed with a certificate. In the current FirstSpirit version, the content is signed with a new certificate that is valid until 2020-07-22 (22 July 2020). Further information can be found in chapter "General: Code signing certificate updated".	Webstart	2018-06
CORE-8055	Optimized evaluation of lock status subsequent to editing inner entries in the input components FS_LIST and FS_CATALOG via InEdit.	ContentCreator	2018-06
CORE-8060	Security improvements related to redirects by FirstSpirit.	Security, Server Administrator	2018-06
CORE-8073	Improvements related to class loading.	Isolated mode (BETA)	2018-06
CORE-8076 CORE-7892 CORE-7894	In the course of introducing the new release naming scheme, the display of version information in FirstSpirit has been extended. Further information can be found in chapter "General: Display of Version Information".	ContentCreator	2018-06
CORE-8077	The new `NewSectionOperation` interface (`de.espirit.firstspirit.webedit.server` package, FirstSpirit Developer API) takes over the function of the internal Java class `de.espirit.firstspirit.webedit.server.executa` Further information can be found in chapter "Module Development, Scripts, API: The "NewSectionOperation" interface takes over the function of "NewSectionExecutable"".	ContentCreator, Developer, FirstSpirit API	2018-08
CORE-8101	Fragments and variants can now not just be referenced in ContentCreator, but also edited from within ContentCreator. Further information can be found in chapter "FragmentCreator: Editing fragments and variants from within ContentCreator ".	ContentCreator, FragmentCreator	2018-12

ID	Description	Categories	Version
CORE-8107	When the slave server is using a Berkeley DB version different from its master server, for its backend, the slave server now quits.	Clustering	2018-07
CORE-8115	In rare cases, erroneous behavior could arise during login of users whose login data is imported via LDAP.	Security	2018-06
CORE-8133	In global search, improved searching for date information in metadata.	SiteArchitect	2018-09
CORE-8140	Saving information on the order of entries in the input component FS_INDEX was improved.	SiteArchitect	2018-06
CORE-8148	The latest FirstSprit release, allows further attributes of the FirstSpirit license to be accessed via the developer API. Further information can be found in chapter "Module Development, Scripts, API: License: retrieve license expiration date and number of CaaS slots".	FirstSpirit API, FirstSpirit Administrator, License	2018-07
CORE-8160	Improved consideration of tabs (CMS_GROUP) which are hidden due to a rule.	ContentCreator	2018-09
CORE-8173	Cessation of support for Java 7 has enabled applications of the outdated Java class `java.util.Date` to be replaced by a more modern Java API in the FirstSpirit Developer API. Further information can be found in chapter "Module Development, Scripts, API: Use of new Java API for date calculation".	Developer, FirstSpirit API	2018-07
CORE-8175	When dragging a picture from the Clipboard, which was opened in a separate windows, onto an FS_REFERENCE input component, the following dialogue could appear in the background.	SiteArchitect	2018-07
CORE-8213	In very rare cases a root node folder (`Root`; e.g. in the Media store or Site structure) erroneously was displayed in the list of invalid references.	SiteArchitect	2018-07
CORE-8224	With special configurations, the FirstSpirit start page was incorrectly not being called up after exiting ContentCreator.	ContentCreator	2018-07

ID	Description	Categories	Version
CORE-8227	The evaluation of `previewId()` return values for datasets using `PreviewIdAgent` (FirstSpirit Developer API) was improved.	Developer	2018-06
CORE-8231	With the latest FirstSpirit release, a new version of the FirstSpirit Launcher will be available (EAP), which will replace the previous Launcher in a subsequent release. Further information can be found in chapter "Administration: New FirstSpirit Launcher".	FirstSpirit Administrator, Java, Launcher, ServerManager, SiteArchitect, Webstart	2018-08
CORE-8235	Erroneous behavior could arise when setting metadata while using the browser Mozilla Firefox.	ContentCreator	2018-10
CORE-8280	The FirstSpirit Access API was extended by the interface `ExternalGroup` (package: `de.espirit.firstspirit.access.project`). This enables getting and setting of the name of an external group. Further information can be found in chapter "Module Development, Scripts, API: Extension of the FirstSpirit API by the "ExternalGroup" interface".	FirstSpirit API	2018-11
CORE-8283	When navigating between datasets, which could be displayed in different data sources, erroneous tab switching behavior could occur.	SiteArchitect	2018-07
CORE-8331	With the latest FirstSpirit release, a maximum width and height of 18,918 pixels can be defined for resolutions. Further information can be found in chapter "Administration: Resolutions: Maximum width and height have been increased (18,918 pixels)".	Developer, FirstSpirit Administrator, Media Store, ServerManager	2018-07
CORE-8332	With the current release of FirstSpirit, personal data of deleted users can be made anonymous. Further information can be found in chapter "Administration: Anonymization of personal data of deleted users".	FirstSpirit Administrator, Security	2018-07

ID	Description	Categories	Version
CORE-8336	With the latest FirstSpirit release an additional `getSuggestions` method has been introduced which permits the name of an `indexField` (used by the "Apache Lucene" search engine) to be specified in addition. Further information can be found in chapter "Module Development, Scripts, API: Using an "indexField" to get search suggestions".	Developer, FirstSpirit API, Search	2018-07
CORE-8338	New agent `ServerConfigurationAgent` for configuring the server via API. Further information can be found in chapter "Module Development, Scripts, API: New agent "ServerConfigurationAgent" for configuring the server".	Developer, FirstSpirit API	2018-07
CORE-8344	For the conversion of language-independent media into language-dependent media, the display of the languages that are available for selection has been optimized.	Media Store, SiteArchitect	2018-07
CORE-8365	A new FirstSpirit login module with "single sign-on" (SSO) support via SAML 2.0 has been developed and is currently in the EAP phase. Further information can be found in chapter "Administration / Modules: New FirstSpirit login module with SSO via SAML 2.0 (EAP)".	Modules, Server Administrator	2018-12
CORE-8372	Upon installing a FirstSpirit server on Linux operating systems, an error could occur during the initial start of the server.	FirstSpirit Administrator	2018-07
CORE-8376	The title of the login page has been corrected on the browser tab.	FirstSpirit home page	2018-07

ID	Description	Categories	Version
CORE-8379	In the latest FirstSpirit release, an error affecting the conversion of Berkeley DBs with the "BerkeleyUtil" conversion tool when using the `--convert-server` option has been resolved. Further information can be found in chapter "Administration: "BerkeleyUtil" conversion tool: Function of the "--convert-server" option has been corrected".	FirstSpirit Administrator, Repository	2018-07
CORE-8387	Via the new aspect `Updating` in the package `de.espirit.firstspirit.client.plugin.dataacce` (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters. Further information can be found in chapter "Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible".	ContentCreator, Data Access Plug-In, Developer, Input Components, Module development, SiteArchitect	2018-11
CORE-8426	When creating sections, the suggested reference name has incorrectly not been included.	SiteArchitect	2018-07
CORE-8427	Maintaining the input component CMS_INPUT_PERMISSION within a subform could lead to erroneous behavior.	Input Components, SiteArchitect	2018-07
CORE-8431	The standard recognition of 32 and 64 bit systems has been deactivated (Java Wrapper, `fs-wrapper.*.conf`). Further information can be found in chapter "General: Java Wrapper (fs-wrapper.*.conf): Standard recognition of 32 and 64 bit systems has been deactivated".	FirstSpirit Administrator	2018-07
CORE-8454	Using the interface `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) could lead to erroneous behavior when outputting structure variables.	Developer, FirstSpirit API	2018-07
CORE-8459	Testing the connection configuration after having configured a database could lead to erroneous behavior.	Database, ServerManager	2018-07

ID	Description	Categories	Version
CORE-8469 CORE-8379 CORE-8482 CORE-8514	Optimizations related to FirstSpirit Oracle Berkeley DB.	FirstSpirit Administrator, Repository	2018-07
CORE-8470 CORE-8963	Improved behavior related to concurrent updates of subscriptions.	Corporate Content	2018-09
CORE-8473	In FirstSpirit release 2018-07, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software, Modules	2018-07
CORE-8489 CORE-8492	The latest release provides new options for configuring web servers that can be used in production. Further information can be found in chapter "Administration: FirstSpirit web server configuration (inc. Jetty)".	FirstSpirit Administrator, ServerManager	2018-08
CORE-8493	*FSDevTools* version 2.1.659 or higher is needed to use "FirstSpirit External Synchronization". Further information can be found in chapter "External Synchronization: Update of "FSDevTools"".	Developer, External synchronization	2018-08
CORE-8509	While an administrator edits a CorporateContent package on the master server, no package-changing actions can be performed by any other user within SiteArchitect. Further information can be found in chapter "Modules: Corporate Content: Behavioral change for CorporateContent packages currently being edited within SiteArchitect".	Corporate Content, SiteArchitect	2018-12
CORE-8516	Displaying forms with CMS_GROUP elements that have been hidden using a rule could lead to malfunctions when using Oracle Java 10.	Java	2018-08
CORE-8519 CORE-5784	Improved behavior when creating new datasets in the input component FS_DATASET.	ContentCreator	2018-09

ID	Description	Categories	Version
CORE-8521	Adding a new language to a project could lead to erroneous behavior.	Languages, ServerManager	2018-08
CORE-8523	Using the integrated data edit function in the AppCenter area to edit files has been optimized.	SiteArchitect	2018-08
CORE-8525	If problems arise while converting the database, the original data will not be deleted from the FirstSpirit server anymore. Further information can be found in chapter "Administration: Conversion tool "BerkeleyUtil": In the event of an error, the original data is saved in a backup folder.".	FirstSpirit Administrator, Integrated software, Repository	2018-07
CORE-8534	During generation of a page from the Page Content store via the `RenderingAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API), erroneous behavior could arise if the page contained a data source-based section.	Developer, FirstSpirit API	2018-09
CORE-8535	The location for storing JAR files ("JAR cache") has been moved to the directory `${cmsroot}/work/storage/jars` of the FirstSpirit server. Further information can be found in chapter "Administration: Changed location for the JAR cache ".	FirstSpirit Administrator	2018-08
CORE-8544	The template function `previewId` now accepts the parameter `entity`, like the function `editorId`. Further information can be found in chapter "Module Development, Scripts, API: Function "previewId" was extended to support a parameter "entity"".	Developer, FirstSpirit API	2018-07
CORE-8550	Malfunctions could occur when using the `ShowFormDialogOperation` interface (`de.espirit.firstspirit.ui.operations` package, FirstSpirit Developer API) .	FirstSpirit API	2018-08
CORE-8558	Erroneous behavior could arise when uploading media via drag and drop.	SiteArchitect	2018-09

ID	Description	Categories	Version
CORE-8588	On changed pages, the menu entry "Display all changes" was not always displayed correctly.	ContentCreator	2018-09
CORE-8590	A new, valid license is required to use the FragmentCreator.	FragmentCreator, License	2018-09
CORE-8614 CORE-7919 CORE-8438	In existing installations, the entry `--add-modules=java.activation` must be removed manually from the `fs-wrapper-j2.include.conf` wrapper file in the `<FirstSpiritROOT>/conf` subdirectory. Further information can be found in chapter "Administration: Modifications in the Java environment (wrapper configuration)".	Isolated mode (BETA)	2018-09
CORE-8616	Identification of entries of an FS_CATALOG ("cards") using a unique ID. Further information can be found in chapter "Input components: FS_CATALOG: Identification of entries ("cards")".	Developer, FirstSpirit API, Input Components	2018-12
CORE-8623	Improved workflow support related to erroneous input.	FragmentCreator	2018-11
CORE-8626	Optimized the error message that indicates validation problems while importing a feature.	Content Transport	2018-09
CORE-8628	Corrected the behavior of renaming navigation entries such that, when the Store Mapping type "Synchronous site- and page-store" is used, only entries can be renamed for which the user has the necessary "Change" permission in both stores.	ContentCreator	2018-09
CORE-8629	The process of refreshing input components after changing the language dependency has been improved.	Input Components, SiteArchitect	2018-08
CORE-8648	Changed label for the context menu and toolbar function "Preview" to "Display preview". Further information can be found in chapter "SiteArchitect: Changed label for the function "Preview"".	SiteArchitect	2018-09

ID	Description	Categories	Version
CORE-8650	In the `ShowFormDialogOperation` interface (`de.espirit.firstspirit.ui.operations` package, FirstSpirit Developer API), the new `setPreselectedLanguage` method now makes it possible to set the preselected language for a multilingual dialog. Further information can be found in chapter "Module Development, Scripts, API: "ShowFormDialogOperation" interface, new method "setPreselectedLanguage"".	FirstSpirit API, Languages, Third Party Preview (TPP)	2018-08
CORE-8654	In the ContentCreator JavaScript API "WE_API", the FSID object was extended to include a project language (parameter `language`). Further information can be found in chapter "Module Development, Scripts, API: ContentCreator JavaScript API "WE_API": FSID can now work with language dependency".	FirstSpirit API, Languages, Third Party Preview (TPP)	2018-09
CORE-8657	The interface `NewSectionOperation` (Package `de.espirit.firstspirit.webedit.server`, FirstSpirit Developer-API) has been extended with the method `preselectedLanguage`. By using the new method it is now possible to preselect a project language for editing language-dependent editorial content. Further information can be found in chapter "Module Development, Scripts, API: Interface "NewSectionOperation": New method "preselectedLanguage"".	FirstSpirit API, Languages, Third Party Preview (TPP)	2018-08
CORE-8661	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software, Launcher, SiteArchitect	2018-09

ID	Description	Categories	Version
CORE-8662	With the latest FirstSpirit release, Mozilla Firefox has been withdrawn as the browser engine for the integrated preview as planned. Further information can be found in chapter "SiteArchitect / ServerManager: "Mozilla Firefox" browser engine withdrawn".	Editor, FirstSpirit Administrator, Integrated software, Java, Preview, ServerManager, SiteArchitect	2018-08
CORE-8663	Improved performance during feature creation.	Content Transport	2018-10
CORE-8680	Improved clean-up of user sessions when closing the browser tab.	ContentCreator	2018-09
CORE-8702	Extended the input component FS_CATALOG by "Duplicate" functionality. Further information can be found in chapter "Input components: Duplicating entries in the input component FS_CATALOG".	ContentCreator, Input Components	2018-09
CORE-8710	In the course of FirstSpirit's design rebrush, the method `getTypeIcon` of the interface `SnippetAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Access API) now uses restyled, more modern type icons in FirstSpirit SiteArchitect. Further information can be found in chapter "SiteArchitect: "de.espirit.firstspirit.agency.SnippetAgent#getTypeIcon" Uses Restyled icons".	Data Access Plug-In, Module development, SiteArchitect	2018-09
CORE-8721	Optimized use of the interface `ScheduleTask` (package `de.espirit.firstspirit.access.schedule`, FirstSpirit Access API) in FirstSpirit server in isolated mode.	Developer, Isolated mode (BETA)	2018-09
CORE-8723	The display of media names in Media Store has been optimized.	ContentCreator	2018-08
CORE-8724	Requesting a preview in an external web browser when integrated preview is enabled could lead to erroneous behavior.	Editor, Preview, SiteArchitect	2018-09
CORE-8736	Improved behavior of move operations involving sections.	SiteArchitect	2018-09

ID	Description	Categories	Version
CORE-8745	Extended the interface `ModuleAdminAgent` (package `de.espirit.firstspirit.agency`, FirstSpirit Developer API) by adding methods for registration and configuration of web servers. Further information can be found in chapter "Module Development, Scripts, API: Interface "ModuleAdminAgent": New methods for registration and configuration of web servers".	Developer, FirstSpirit API, FirstSpirit Administrator, Module development, Web server	2018-09
CORE-8759	In rare cases, erroneous behavior could arise during start-up of the FirstSpirit server.	Isolated mode (BETA)	2018-11
CORE-8768	In workflows, improved mail sending to defined groups.	SiteArchitect, Workflow	2018-12
CORE-8770	In rare cases, the temporary FirstSpirit folder was cleared away during SiteArchitect use. This could lead to erroneous behavior.	SiteArchitect	2019-02
CORE-8794	Improved behavior of language-dependent media when some project languages are set to be invisible.	SiteArchitect	2018-09
CORE-8803	In rare cases, erroneous behavior could arise if an input component CMS_INPUT_DOM used a format template for paragraph formatting that set a `<div>` or a `<span>`.	ContentCreator	2018-09
CORE-8811	The output format of the generation function `previewId(..)` has been changed. We recommend to update the data stored in the Preview-CaaS with version FirstSpirit 2018-08. Further information can be found in chapter "Module Development, Scripts, API: Ouput format of function "previewId(..)" changed".	Third Party Preview (TPP)	2018-08
CORE-8820	Security improvements related to redirects by FirstSpirit.	Security, Server Administrator	2018-09

ID	Description	Categories	Version
CORE-8822	Erroneously, the preview was always updated when using the operation `CropDialogOperation` (package `de.espirit.firstspirit.webedit.server`, FirstSpirit Developer API).	ContentCreator, Developer, FirstSpirit API	2018-09
CORE-8823	Optimized rule evaluation in translation help.	Dynamic Forms, SiteArchitect	2018-09
CORE-8825	When using Microsoft Internet Explorer 11, erroneous behavior could arise when resizing the window.	ContentCreator	2018-09
CORE-8828	In FirstSpirit ContentCreator, when displaying a button to edit metadata of a page reference (via `...editorId(..., meta:true)...`), the icon that allows moving the menu entry was erroneously displayed as well. This behavior has been corrected.	ContentCreator, Developer, Metadata, Template Development	2018-09
CORE-8837	In very rare cases, after project archival, intermittent erroneous behavior could arise in data sources due to an outdated cache.	Archiving, FirstSpirit Administrator	2018-09
CORE-8849	Optimized saving changes made to project components.	FirstSpirit Administrator	2018-09
CORE-8852	The module "CaaS Integration for CXT" enables delivery of a fragment project's content via the universal FirstSpirit CaaS interface. Further information can be found in chapter "FragmentCreator: Delivery of fragments and variants via FirstSpirit CaaS (Content-as-a-Service)".	FragmentCreator, Modules	2018-12
CORE-8853	The module "CaaS Integration for CXT" enables deployment of a fragment project's content (via a schedule entry script) on the universal FirstSpirit CaaS interface. Further information can be found in chapter "FragmentCreator: Delivery of fragments and variants via FirstSpirit CaaS (Content-as-a-Service) (by schedule entry)".	FragmentCreator, Modules, Tasks	2019-01
CORE-8868	Improved use of the Aggregating Web Server under Java 11.	Java, Web server	2018-09

ID	Description	Categories	Version
CORE-8874	Optimized editing of texts with links in the input component CMS_INPUT_DOM when Microsoft Internet Explorer 11 or Microsoft Edge are used.	ContentCreator	2018-09
CORE-8875	Security improvements related to template code execution.	Security, Template Development	2018-09
CORE-8883	During start-up of a FirstSpirit server, information about the current runlevel is now provided which may be used to react to, for example via API. Further information can be found in chapter "Administration: Obtaining the status of a FirstSpirit server during start-up".	Developer, FirstSpirit API	2018-12
CORE-8907	Erroneous behavior could arise when illegal characters were used in the host name in the configuration file `fs-server.conf`.	FirstSpirit Administrator	2018-09
CORE-8911	As of the current release, it is now possible to include language-dependent links in e-mails that are sent by workflows. Further information can be found in chapter "Administration: Workflows: Variables for language-dependent URLs in e-mails".	Developer, FirstSpirit Administrator, Release, Workflow	2018-10
CORE-8914 CORE-8915	The FirstSpirit Launcher has been improved. Further information can be found in chapter "Administration: Improvements of the FirstSpirit Launcher".	Launcher	2018-09
CORE-8925	Extended the interface `FeatureInstallResult` (Package `de.espirit.firstspirit.feature`, FirstSpirit Developer API). Further information can be found in chapter "Module Development, Scripts, API: FirstSpirit ContentTransport: Obtaining information about imported content".	Content Transport, Developer, FirstSpirit API	2018-10

ID	Description	Categories	Version
CORE-8934	If one or more web applications are configured to run on the "InternalJetty" of a FirstSpirit server, the start page of the FirstSpirit server will show a warning to users with the administrator role. Further information can be found in chapter "Administration: Usage of the "InternalJetty" web server".	FirstSpirit Administrator, Web server	2018-10
CORE-8942 CORE-9055	In the current FirstSpirit version, updated internally used software. Further information can be found in chapter "System: Integrated Software".	Integrated software, Preview, SiteArchitect	2018-11
CORE-8949	Stability improvements related to FirstSpirit Launcher	Launcher	2018-09
CORE-8959	Improved setting and editing of SEO URLs on menu levels.	SiteArchitect	2018-09
CORE-8968	Optimized consideration of aborted sessions when editing data sources with server lock.	Content Store	2018-11
CORE-8986	Optimized clean-up of technical sessions.	FirstSpirit Administrator	2018-11
CORE-8995	As of the current FirstSpirit release, the operating system-specific third-party applications in FirstSpirit SiteArchitect's AppCenter that were announced in FirstSpirit version 5.2R19 (March 2018) to be discontinued are, as planned, no longer available. Further information can be found in chapter "SiteArchitect / ServerManager: Cessation of availability of operating system-specific third-party applications in AppCenter".	Editor, FirstSpirit Administrator, Integrated software, Java, Media Store, ServerManager, SiteArchitect	2018-09
CORE-9013	When using the access control to data of "DataAccess-Plug-ins", erroneous behavior could occur during the search.	ContentCreator, Data Access Plug-In, SiteArchitect	2018-09
CORE-9016	In very rare cases, erroneous behavior could arise during use of `#global.stopGenerate`.	Developer, Generation	2018-09

ID	Description	Categories	Version
CORE-9019	Improvements related to display of the navigation menu when creating a new page.	ContentCreator	2018-09
CORE-9021	Improved consideration of directories referenced via symlink when using BerkeleyUtil.	FirstSpirit Administrator	2018-09
CORE-9022	Variants can be marked as favorites and displayed in a favorites list. Further information can be found in chapter "FragmentCreator: Display of Variants in Favorites List".	FragmentCreator	2018-11
CORE-9024	In conjunction with the parameter `editorId`, erroneous behavior could arise during output of dataset contents using `$CMS_VALUE(dataset.getFormData())$`.	Preview	2018-09
CORE-9040	Erroneous behavior could arise in the display of usages of a section template in a form that was called via a script.	ContentCreator	2018-10
CORE-9059	When using multiple monitors, it was possible that dialogs were opened at unexpected positions.	SiteArchitect	2018-09
CORE-9062	As of the current release, new FirstSpirit installations use the web server "FirstSpirit Jetty Server" as standard. Further information can be found in chapter "Administration: Web server configuration: new FirstSpirit installations use the web server "FirstSpirit Jetty Server"".	FirstSpirit Administrator, Web server	2018-09
CORE-9072	Increased error tolerance related to configuration of the parameter `listConfig` for the input components CMS_INPUT_DOM and CMS_INPUT_DOMTABLE.	Developer, Input Components	2018-10
CORE-9074	In rare cases, erroneous behavior could arise during assembly of web resources.	FirstSpirit Administrator	2018-10
CORE-9086	It is now possible to release or delete multiple variants of a fragment at the same time. Further information can be found in chapter "FragmentCreator: Releasing or deleting multiple variants of a fragment at the same time".	FragmentCreator	2018-12

ID	Description	Categories	Version
CORE-9100	Optimized roll-out of web applications when moving the start page to another web server.	FirstSpirit Administrator, ServerManager	2018-10
CORE-9117	Improved installation of a FirstSpirit server in isolated mode on Linux.	Isolated mode (BETA), Server Administrator	2018-12
CORE-9135	Improved operating behavior of FirstSpirit Jetty Web Server on Microsoft Windows.	FirstSpirit Administrator, Web server	2018-09
CORE-9136	Saving the configuration of an FS_CATALOG input component without a `<TEMPLATES>` tag caused display of a Java exception. Now, a concise error message that indicates the missing tag will be displayed.	Input Components, SiteArchitect, Template Development	5.2R3
CORE-9137	After removing an entry from an index (input component FS_INDEX), switching to another project language of the form and then saving the form could lead to erroneous behavior.	ContentCreator, Input Components	5.2R2
CORE-9138	Optimized rule evaluation (functionality "Dynamic Forms") for languages of a form that haven't been displayed yet.	Dynamic Forms, SiteArchitect	5.2R2
CORE-9139	In an integrated preview using Internet Explorer as browser, opening external links in a separate window could lead to erroneous behavior.	Preview, SiteArchitect	5.2R2
CORE-9140	In the input component FS_LIST (type INLINE), optimized copy and paste operations of entries between lists via the context menu.	Input Components, SiteArchitect	5.2R2
CORE-9141	If the "Filterable" aspect of a Data Access Plug-In defines more than one parameter with the same name, only the first provided parameter with that name will now be used.

Further information can be found in chapter "Module Development, Scripts, API: Changed Behavior for Data Stream Builder Implementations With Aspect "Filterable"". | Developer, FirstSpirit API, Template Development | 5.2R2 |

ID	Description	Categories	Version
CORE-9142	Via the API, Dataset objects can now only be saved (method `save()`) if they are locked (e.g. method `lock(true)`) or the option "Server locks in content store" (ServerManager / Project / Properties / Options) is deactivated. Further information can be found in chapter "Module Development, Scripts, API: Method save() observes the option "Server locks in content store"".	Developer, FirstSpirit API, Template Development	5.2R2
CORE-9143	Optimized updating the value of an FS_DATASET input component when multiple users perform edits in parallel.	Input Components, SiteArchitect	5.2R2
CORE-9144	In ServerMonitoring and ServerManager, the default text for messages (functionality "Send message") is now identical.	Server Administrator, ServerManager, ServerMonitoring	5.2R2
CORE-9145	Navigating to an HTML anchor element after refreshing the preview could lead to erroneous behavior.	ContentCreator, Preview	5.2R2
CORE-9146	Implemented measures to improve security in FirstSpirit ServerMonitoring as well as in FirstSpirit web applications. Further information can be found in chapter "Administration: Security improvements in FirstSpirit ServerMonitoring and web applications".	FirstSpirit Administrator, ServerMonitoring	5.2R2
CORE-9147	Template Wizard: New functionality for detecting and merging differences between content which has already been edited and imported. Further information can be found in chapter "Template Wizard: Detecting and merging changes".	Developer, Template Development, Template Wizard	5.2R2
CORE-9148	The table view when editing datasets has been optimized.	Content Store, SiteArchitect	5.2R2
CORE-9149	A meaningful error message is now displayed if a section is supposed to be created on a single page in ContentCreator via drag-and-drop, but another user has just edited it.	ContentCreator	5.2R2
CORE-9150	The browser integration for modules has been improved.	Modules, Preview, SiteArchitect	5.2R2

ID	Description	Categories	Version
CORE-9151	The FS_INDEX input component has been expanded to allow access to the value set. Further information can be found in chapter "SiteArchitect / ContentCreator: Access to FS_INDEX value set".	ContentCreator, Developer, SiteArchitect, Template Development	5.2R2
CORE-9152	New FirstSpirit login facility via the HTTP request header ("RequestHeaderLoginModule") Further information can be found in chapter "Administration: Log in via the HTTP request header ("RequestHeaderLoginModule")".	FirstSpirit Administrator	5.2R2
CORE-9153	The performance of the "external synchronization" function has been optimized when adding elements via the user interface. Further information can be found in chapter "External Synchronization: Optimized performance".	Developer, External synchronization, SiteArchitect, Template Development	5.2R2
CORE-9154	The "Overview" tab view in the Template Wizard can now be configured. Further information can be found in chapter "Template Wizard: Configure overview".	Developer, Template Development, Template Wizard	5.2R2
CORE-9155	The new "Follow links" checkbox can be used to configure "Crawling" for the "Template Wizard" function. Further information can be found in chapter "Template Wizard: Activate/deactivate crawling".	Developer, Template Development, Template Wizard	5.2R2
CORE-9156	The process of scaling the thumbnails in the detail and symbol display modes (`viewMode="DETAILS"` and `viewMode="SYMBOLS"`) in the FS_INDEX input component has been improved.	ContentCreator, Input Components, SiteArchitect	5.2R2
CORE-9157	In the case of using the `ref()` function on a nonexistent folder, the generation process now involves recording missing references as information ("INFO" log level) rather than errors ("ERROR" log level).	FirstSpirit Administrator, Generation	5.2R2

ID	Description	Categories	Version
CORE-9160	The "Add column" pop-up dialog in the data source overview has been optimized.	Content Store, SiteArchitect	5.2R2
CORE-9161	Frequently used objects in a FirstSpirit project are now also visualized in editing dialogs in ContentCreator. Further information can be found in chapter "ContentCreator: Visualization of frequently used objects".	ContentCreator, Editor	5.2R2
CORE-9162	Making a change in the database schema for an existing table (i.e., creating a new column) may have resulted in a malfunction when maintaining data in the data source.	Content Store, Developer, Template Development	5.2R2
CORE-9163	Projects are now protected against simultaneous editing by several developers using the "FirstSpirit Template Wizard" function. Further information can be found in chapter "Template Wizard: Protection against simultaneous project editing".	Developer, SiteArchitect, Template Development, Template Wizard	5.2R2
CORE-9164	New list entries in FS_LIST (DATABASE and INLINE types), FS_CATALOG, and FS_INDEX can now be created directly from the preview in ContentCreator via FS_BUTTON. Further information can be found in chapter "ContentCreator: Create new list items using the FS_BUTTON".	ContentCreator, Developer, Editor, Template Development	5.2R2
CORE-9165	Some methods in the `Content2` (FirstSpirit Access API, `de.espirit.firstspirit.access.store.contents` package) have been discontinued ("Deprecation") and can be omitted in the next FirstSpirit major version (6.0). Further information can be found in chapter "Module Development, Scripts, API: Discontinuation ("Deprecation") of methods for the "Content2" interface".	Developer, FirstSpirit API, Module development, Template Development	5.2R2

ID	Description	Categories	Version
CORE-9166	The version comparison dialog has been updated. It now also provides the option to "merge" differences between revisions. Further information can be found in chapter "SiteArchitect: Revised version comparison".	Developer, SiteArchitect, Template Development	5.2R2
CORE-9167	Due to a change in the FirstSpirit Developer API, any special modules that you have created yourself and that use the *PreviewParameter* (package *de.espirit.firstspirit.client.mpp*) interface must be recreated after upgrading to FirstSpirit version 5.2R2. Further information can be found in chapter "Module Development, Scripts, API: General information".	Developer, FirstSpirit API, Module development	5.2R2
CORE-9168	E-mails are now no longer sent automatically if the license has expired. Further information can be found in chapter "Administration: Expired license warning".	FirstSpirit Administrator, License	5.2R2
CORE-9169	Security improvements when starting SiteArchitect and ContentCreator.	ContentCreator, Security, SiteArchitect	5.2R2
CORE-9170	Within the FS_LIST (INLINE type) component, the deletion of an entry from the list was not identified as a change even though it should have been.	Editor, Input Components, SiteArchitect	5.2R2
CORE-9171	Project exports can now be reduced by excluding pre-calculated image resolutions. Further information can be found in chapter "Administration: Reduce project exports by excluding pre-calculated image resolutions".	FirstSpirit Administrator, Project export / import, ServerManager	5.2R2
CORE-9172	The options for code completion in templates have been expanded. Further information can be found in chapter "SiteArchitect: Optimizing code completion in templates".	Developer, SiteArchitect, Template Development	5.2R2

ID	Description	Categories	Version
CORE-9173	Sections can now also be moved into other content areas in ContentCreator. Further information can be found in chapter "ContentCreator: Move sections into other content areas".	ContentCreator, Developer, Editor	5.2R2
CORE-9174	Within the FS_LIST (DATABASE type) input component, the selection view has been optimized in the selection dialog.	Input Components, SiteArchitect	5.2R2
CORE-9175	In terms of the "Enterprise Backup" functionality, license evaluation has been optimized for the purpose of creating a schedule.	Backup, FirstSpirit Administrator, ServerManager	5.2R2
CORE-9176	The pop-up dialog for searching in database tables incorrectly remained in the foreground when you switched to another application outside the FirstSpirit environment.	Content Store, Search, SiteArchitect	5.2R2
CORE-9180	Downloading the log files may have resulted in a malfunction in ServerMonitoring.	FirstSpirit Administrator, ServerMonitoring	5.2R2
CORE-9186	Added package `org.jetbrains.annotations` to `fs-isolated-runtime.jar`.	Isolated mode (BETA)	2018-11
CORE-9189	Optimized logging of FirstSpirit Jetty Server.	Server Administrator	2018-11
CORE-9190	Optimized display of preset values in forms.	SiteArchitect	2018-11
CORE-9191	A more informative error message will now be shown if, erroneously, external users are used as technical users in schedule tasks.	FirstSpirit Administrator	2018-12
CORE-9193	When using Java 11, display issues could occur related to the caret in the input components CMS_INPUT_DOM and CMS_INPUT_DOMTABLE if certain fonts were used.	Input Components, Java	2018-12
CORE-9194	Optimized display of thumbnails during image selection.	ContentCreator	2018-10
CORE-9195	In the input component FS_CATALOG, the context menu entry "Paste" will now only be active when the clipboard contains a suitable element.	SiteArchitect	2018-11

ID	Description	Categories	Version
CORE-9198 CORE-9192	The use of the FirstSpirit Jetty Web Server has been improved.	FirstSpirit Administrator, Web server	2018-09
CORE-9200	In client logging, optimized consideration of the configured log level.	SiteArchitect	2018-11
CORE-9204	Canceling out of editing a form could in some cases cause the preview page to be reloaded unnecessarily.	ContentCreator	2018-11
CORE-9207	Improved consideration of user permissions when uploading files via a script.	Developer	2018-12
CORE-9220	Fixed a display error when updating modules in global web applications.	ServerManager	2018-10
CORE-9227	Optimized consideration of rule infractions in other languages when saving a form.	ContentCreator	2018-11
CORE-9238	Optimized shutdown behavior of FirstSpirit server when Jetty Web Server is used.	Server Administrator	2018-10
CORE-9246	Using the new interface `PreviewUrlAgent` (FirstSpirit Developer API, Package `de.espirit.firstspirit.agency`) URLs of FirstSpirit objects can be created for preview. Further information can be found in chapter "Module Development, Scripts, API: New Interface "PreviewUrlAgent" for creating preview URLs".	FirstSpirit API	2019-01
CORE-9248	Extension of the *ContentCreator-JavaScript-API / WE_API* to enable attaching client-side actions to FS_INDEX entries within the ContentCreator. Further information can be found in chapter "Module Development, Scripts, API: Extension of the ContentCreator-JavaScript-API / WE_API to enable client-side actions on FS_INDEX entries.".	ContentCreator, FirstSpirit API	2018-11
CORE-9271	Pressing the key F5 now again refreshes the display.	ContentCreator	2018-10

ID	Description	Categories	Version
CORE-9276	Optimized event handling between FirstSpirit server and web application.	ContentCreator	2018-12
CORE-9279	When selecting a file in the media selection dialog, it no longer matters whether the file extension is written in uppercase or lowercase letters.	Media Store, SiteArchitect	5.2R2
CORE-9297	Attempting to install a module with an incorrect `module.xml` now results in a more expressive error message.	FirstSpirit Administrator, Modules	2018-12
CORE-9298	`.normalize` is now only valid until the next call of `$CMS_VALUE(st_dom)$`. Thus, calling `.normalize` is now necessary each time the variable should be output in a normalized fashion in the template. Further information can be found in chapter "Input components: CMS_INPUT_DOM: Normalized output of block elements".	ContentCreator, Developer, Input Components, SiteArchitect	2018-12
CORE-9300	Installing and updating the FirstSpirit server via tar.gz archives Further information can be found in chapter "Administration: Installing and updating the FirstSpirit server via tar.gz archives".	Server Administrator	2018-11
CORE-9307	Improvements related to display of the navigation menu when creating a new page.	ContentCreator	2018-11
CORE-9321	In the current FirstSpirit release, updated internally used software. Further information can be found in chapter "System: Update of internally used software".	Integrated software	2018-12

ID	Description	Categories	Version
CORE-9323	The configuration of the wrapper has been adapted so that the Java-specific parameters can be passed in a single configuration file. This new functionality is available after an update of the Tanuki Java Service Wrapper to version 3.5.36. Further information can be found in chapter "Administration: Configuration settings for the server start depending on the Java version (fs-wrapper.conf)".	FirstSpirit Administrator, Server Administrator	2018-11
CORE-9332	Improved consideration of the user interface language selected on the FirstSpirit start page.	ContentCreator	2018-11
CORE-9337	In very rare cases, it was possible that the FirstSpirit start page was no longer accessible after a server restart if web applications were used.	FirstSpirit Administrator	2018-10
CORE-9338	Improved handling of conflicting resources in web applications.	FirstSpirit Administrator, Modules	2018-11
CORE-9341	Improved tool tip information when editing metadata.	ContentCreator	2018-11
CORE-9357	The functionality "Reintegrate object" can be used in the target project to remove an object node from the package link and to integrate a new object node into the package in its place. Here, element selection was optimized.	Corporate Content	2018-10
CORE-9362	In cluster operations, optimized the behavior during restart of the FirstSpirit master server. Further information can be found in chapter "Administration: Clustering: Optimized behavior during restart of the FirstSpirit master server".	Clustering	2018-12
CORE-9384	Optimized logging of Jetty Web Server.	FirstSpirit Administrator, Web server	2018-11

ID	Description	Categories	Version
CORE-9398	With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned. Further information can be found in chapter "SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)".	Editor, FirstSpirit Administrator, Integrated software, Java, Preview, ServerManager, SiteArchitect	2018-11
CORE-9399	As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions, the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10. As of the current release, only the new Launcher version is supported. Further information can be found in chapter "Administration: End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended".	Editor, FirstSpirit Administrator, Launcher, Webstart	2018-11
CORE-9430	Optimized consideration of the translated status of the page when using the interface `OpenElementDataFormOperation` (package `de.espirit.firstspirit.ui.operations`, FirstSpirit Developer API).	ContentCreator, FirstSpirit API	2018-11
CORE-9451	If the FirstSpirit Jetty Service was in use, erroneous behavior could arise when searching in the FirstSpirit Online Documentation ("ODFS").	Search, Web server	2018-11
CORE-9459	Improved performance when editing SEO URLs.	SiteArchitect	2018-12
CORE-9476	Optimized clean-up of data that is no longer needed when opening archive databases.	Archiving	2018-12

ID	Description	Categories	Version
CORE-9484	"BerkeleyUtil" now provides the option to exclude individual directories from consideration and conversion. By default, all directories whose names begin with . will be excluded. If other directories should be excluded, these must be provided via the parameter `--exclude` in the form of a suitable RegEx. Further information can be found in chapter "Administration: Conversion tool "BerkeleyUtil": Exclusion of directories".	FirstSpirit Administrator, Repository	2018-11
CORE-9499	Optimized classloading when using Jetty Web Server.	Web server	2018-11
CORE-9502	The method `getAdminMode()` of the interface `User` (package `de.espirit.firstspirit.access`, FirstSpirit Access API) erroneously always returned `false` for a server administrator user, even if "Administrator mode" was active in FirstSpirit SiteArchitect (menu "Project").	Developer	2018-12
CORE-9507	Optimized configuration and control of several system services.	FirstSpirit Administrator	2018-11
CORE-9518	Visualization of validation problems Further information can be found in chapter "FragmentCreator: Visualization of validation problems".	FragmentCreator	2018-11
CORE-9522	Erroneously, when editing a template externally, another file name extension than "txt" was used.	SiteArchitect, Template Store	2018-12
CORE-9536	Optimized code completion in the definition of FS_BUTTON input components.	Developer, SiteArchitect, Template Development	2018-12
CORE-9539	In rare cases, when the FirstSpirit start-up process was aborted at an inopportune time following an update, it was possible that some files were created with incomplete content. This state will now be recognized and corrected during the next start-up process.	FirstSpirit Administrator	2018-12

ID	Description	Categories	Version
CORE-9542	As of the current release, FirstSpirit prevents the use of duplicate resources. Further information can be found in chapter "Module Development, Scripts, API: Check for duplicate resources".	Developer, FirstSpirit Administrator, Module development, Server Administrator, ServerManager	2018-12
CORE-9551	In the comparison view (page status, "Display all changes"), long text could cause a display issue.	ContentCreator	2018-11
CORE-9594	When displaying the log files in ServerMonitoring ("Log files / By deployment / History"), the evaluation of the date has been improved.	ServerMonitoring	2019-01
CORE-9612	When a FirstSpirit server was restarted, some web applications did not work without a restart of an upstream Apache Tomcat.	FirstSpirit Administrator	2018-12
CORE-9614	Improved evaluation of the design element CMS_GROUP when it is displayed in forms.	ContentCreator	2018-12
CORE-9619	New sorting system for entries in the FirstSpirit release notes Further information can be found in chapter "General: Release notes: chapter sorting".	Developer, Editor, FirstSpirit Administrator	2019-02
CORE-9632	In rare cases, using the ACL database for a generation could cause erroneous behavior.	Generation	2019-01
CORE-9649	As of FirstSpirit 2018-12, the Java Service Wrapper files which enable operation of a FirstSpirit server in 32-bit mode will no longer be provided. Further information can be found in chapter "Administration: 64- and 32-bit support for FirstSpirit servers".	FirstSpirit Administrator, Integrated software	2018-12
CORE-9673	Improved detection of media usages in multiply nested input components.	SiteArchitect	2018-12
CORE-9674	Using the FirstSpirit Jetty Web Server, malfunctioning could occur when logging on to the FirstSpirit start page in certain languages.	FirstSpirit home page, Web server	2018-12

ID	Description	Categories	Version
CORE-9675	Adjustment of the Technical Datasheet Further information can be found in chapter "Administration: Adjustment of the Technical Datasheet".	FirstSpirit Administrator	2018-12
CORE-9695	When saving datasets, using the "Server locks in content store" option in the project properties could cause erroneous behavior.	ContentCreator	2019-01
CORE-9708	With the new `externalReference` parameter in `editorId()` calls, external references of the relevant FS_INDEX component can now be marked for use in ContentCreator. As part of this new development, the EasyEdit icon bar for cases where input forms allow inputs on multiple levels has also been redesigned. Further information can be found in chapter "ContentCreator: ContentCreator: New options for editing content ".	ContentCreator, Data Access Plug-In, Developer, Editor, Input Components	2019-02
CORE-9709	Using the `start(SpecialistsBroker, ParameterMap)` method from the `DataProvider` interface (FirstSpirit Developer API, `de.espirit.firstspirit.client.plugin` package) could cause erroneous behavior in ContentCreator.	ContentCreator, FirstSpirit API	2019-01
CORE-9712	Improved performance in ContentCreator when using Jetty Web Server and Java 11.	ContentCreator, Performance	2019-01
CORE-9721	If multiple web servers were operated in parallel, certain conditions could cause a user to be redirected to the start page of the wrong web server upon logging out of ContentCreator.	ContentCreator	2018-12
CORE-9722	As of the current release, developers can advertise outbound references of "data access plugins" and thus use the functionality of FirstSpirit's reference manager. Further information can be found in chapter "Module Development, Scripts, API: Data Access Plugins (DAP): Advertising references".	Developer, FirstSpirit API, Input Components	2018-12

ID	Description	Categories	Version
CORE-9728	Optimized clean-up of uninstalled web applications.	Server Administrator	2018-12
CORE-9733 CORE-9722 CORE-9734	"FirstSpirit Media DAP" and "FirstSpirit Fragment DAP" module updates Further information can be found in chapter "FragmentCreator: "FirstSpirit Media DAP" and "FirstSpirit Fragment DAP" module updates".	Data Access Plug-In, FragmentCreator, Media Store, Remote access	2019-01
CORE-9741	Improved display of navigation when creating a new page.	ContentCreator	2018-12
CORE-9747	In rare cases, when running on Microsoft Windows, display errors could arise on monitors with 4K resolution.	SiteArchitect	2018-12
CORE-9759	The file `fs-isolated-runtime.jar` (relevant for FirstSpirit servers running in "Isolated mode") is now rolled out to `~FS/data/fslib` (`~FS` = installation directory of the FirstSpirit server) when the FirstSpirit server is started.	FirstSpirit Administrator, Isolated mode (BETA)	2018-12
CORE-9766	Security improvements related to object deserialization.	Module development, Security	2018-12
CORE-9769	After updating a module with a service, erroneous behavior could occur when removing a project-related web component.	FirstSpirit Administrator	2019-02
CORE-9784	Improved problem detection when configuring a faulty module.	Isolated mode (BETA)	2018-12
CORE-9802	The distribution of content between projects with different language sets was optimized.	Content Transport	2019-02
CORE-9826	Selecting a dataset from a DB scheme with read access using the input component FS_DATASET may have resulted in a malfunction.	ContentCreator	2019-02
CORE-9827	Optimized behavior related to module updates during server update.	FirstSpirit Administrator, Modules	2019-02
CORE-9831	Logging of the "FirstSpirit Jetty Server" web server has been improved.	Web server	2018-12
CORE-9834	Optimized abortion conditions during generation.	Generation	2019-02

ID	Description	Categories	Version
CORE-9837	Creating a dataset in a multiply nested input component FS_LIST (type DATABASE) could lead to erroneous behavior.	SiteArchitect	2019-02
CORE-9861	The evaluation and display of changes within the version comparison was improved for the FS_CATALOG input component.	SiteArchitect	2019-02
CORE-9863	Using Java 11, display issues could occur in the input component CMS_INPUT_DOM concerning blanks in connection with certain fonts.	SiteArchitect	2019-02
CORE-9878	The display of variants in the Favorites bar after showing/ hiding them in the Favorites list has been improved.	FragmentCreator	2019-01
CORE-9889	The listener in `WE_API.Common.addWorkflowTransitionListener((`...`stener)` (Interface `Common`, Package `de.espirit.firstspirit.webedit.client.api`, FirstSpirit Developer API) was not called for some workflow switchings. This has been corrected.	ContentCreator, FirstSpirit API, Workflow	2018-12
CORE-9891	After project archiving and subsequent modification of a node, erroneous behavior could occur when restoring.	Archiving, SiteArchitect	2019-01
CORE-9917	User interface for the conversion from language-independent to language-dependent media has been improved	ContentCreator	2019-02
CORE-9934	When using the macOS operating system, the display of application icons for SiteArchitect and ServerManager has been improved.	ServerManager, SiteArchitect	2019-01
CORE-9960	The version number of the Java Service Wrapper which was used to start the FirstSpirit Server is now displayed in FirstSpirit ServerMonitoring, and provides information about whether an outdated version is being used. In addition, outdated versions are logged in the `fs-wrapper.log` file when the FirstSpirit Server is started. Further information can be found in chapter "Administration: Displaying the wrapper version in ServerMonitoring and log".	FirstSpirit Administrator, ServerMonitoring	2019-01

ID	Description	Categories	Version
CORE-9962	In the input component FS_INDEX, malfunction may have occurred after the exchange of a selected entry.	SiteArchitect	2019-02
CORE-9989	Support for template development with a JSON presentation channel. Further information can be found in chapter "Administration: JSON validator".	Developer, FirstSpirit Administrator, ServerManager, SiteArchitect, Template Development, Template Store	2019-01
CORE-10012	The parameter `corsAllowedOrigins` may be used to define a global CORS configuration for CXT MicroApps and for CXT REST calls (default value is the `FIRST_SPIRIT_URL`). Further information can be found in chapter "FirstSpirit Content Experience Tools (CXT): Global CORS configuration for CXT MicroApps and for CXT REST calls".	Developer, FirstSpirit Content Experience Tools (CXT), FragmentCreator	2019-02
CORE-10019	In the target project, adding an element could cause erroneous behavior if the parent node belonged to a package and the user did not have access to the source project.	Corporate Content	2019-02
CORE-10029	Editing fragments within ContentCreator could cause erroneous behavior.	ContentCreator, FragmentCreator	2019-01
CORE-10031 CORE-9542 CORE-10024	Improved detection of duplicate resources in modules Further information can be found in chapter "Module Development, Scripts, API: Improved detection of duplicate resources in modules".	Developer, Isolated mode (BETA), Module development	2019-02
CORE-10034	Creating a new page in the Global Content could lead to erroneous behavior.	SiteArchitect	2019-01
CORE-10073	Improved JSON Validation Further information can be found in chapter "SiteArchitect: JSON: Improved validation".	Developer, Preview, SiteArchitect, Template Development, Template Store	2019-02

ID	Description	Categories	Version
CORE-10089	Erroneous behavior could arise when using periods in search.	FragmentCreator	2019-02
CORE-10095	In the dialog for uploading media, the labeling of the drop area has been improved in Russian.	ContentCreator	2019-02
CORE-10104	A special character can be used as a normal search character by using a backslash (\). Further information can be found in chapter "SiteArchitect: Search syntax: Masking special characters by using backslashes (\)".	SiteArchitect	2019-02
CORE-10106 CORE-8365	The FirstSpirit SAML Login Module is released. Further information can be found in chapter "Administration / Modules: The FirstSpirit SAML Login Module is released.".	Advanced URL	2019-02
CORE-10121	Optimized adoption of form examples via drag-and-drop directly from within FirstSpirit Online Documentation shown in the preview area onto the tab "Form" in a template.	SiteArchitect, Template Development	2019-02
CORE-10122	In the file `fs-server.conf`, the value `TLS_DH_anon_WITH_AES_128_CBC_SHA` for the SSL-related parameter `fs.ssl.cipherSuites` is no longer valid and must be adjusted. Further information can be found in chapter "Administration: SSL Encryption: Modifications to "fs-server.conf"".	FirstSpirit Administrator	2019-02
CORE-10126	Using macOS operating system, erroneous behavior could arise when starting FirstSpirit ServerManager under Java 11.	FirstSpirit Administrator	2019-02
CORE-10154	Optimized module "fs-web-compatibility.fsm".	Modules	2019-02

ID	Description	Categories	Version
CORE-10174	As of the current release, it is possible to specify which variant should be shown initially when using the MicroApp "Edit fragment". Further information can be found in chapter "FirstSpirit Content Experience Tools (CXT): Preselecting a variant for editing ("documentId")".	Developer, FirstSpirit Content Experience Tools (CXT), FragmentCreator	2019-02
CORE-10189	Removal of "InternalJetty" Further information can be found in chapter "Administration: Removal of "InternalJetty"".	Integrated software, Web server	2019-02
CORE-10202	Uninstalling web applications will now also cause removal of registered ServiceProviders as long as these were loaded via the context class loader of the web application. This ensures that the old classes are no longer used upon updating the web application.	FirstSpirit Administrator	2019-02
CORE-10207	"Isolated mode" is released. Further information can be found in chapter "Module Development, Scripts, API: "Isolated mode" is released".	Developer, Isolated mode (BETA), Module development, Modules	2019-02
CORE-10222	The Technical Datasheet for FirstSpirit has been revised. Further information can be found in chapter "General: New Technical Datasheet for FirstSpirit".	ContentCreator, Database, FragmentCreator, Java, ServerManager, ServerMonitoring, SiteArchitect	2019-02
CORE-10225	Erroneous behavior could arise when using the method `executeScriptMethod(String, Object)` of the interface `BrowserApplication` (FirstSpirit Developer API, package `de.espirit.firstspirit.client.gui.application.browser`).	FirstSpirit API	2019-02
CORE-10244	Optimized memory utilization when using bookmarks.	ContentCreator	2019-02